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INTERNATIONAL JOINT COMMISSION

*U.S. and
Canada*

HEARINGS AND ARGUMENTS

IN THE MATTER OF THE
APPLICATIONS OF

THE ST. CROIX WATER POWER COMPANY
AND
THE SPRAGUE'S FALLS MANUFACTURING
COMPANY, LIMITED

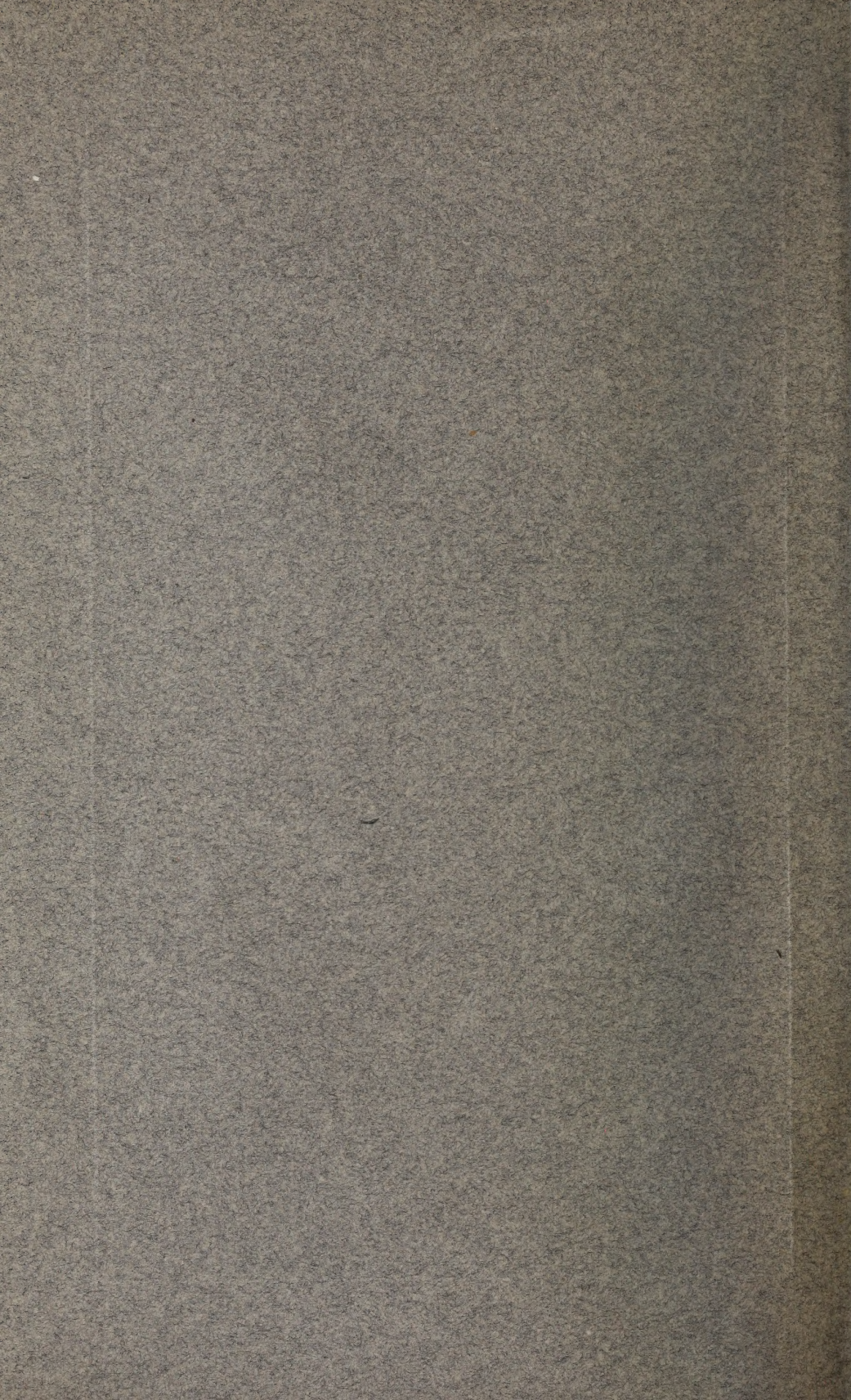
FOR THE APPROVAL OF THE OBSTRUCTION,
DIVERSION, AND USE OF THE WATERS
OF THE ST. CROIX RIVER

Application St. Croix Water Power Company
Filed January 29, 1915. Decided November 9, 1915.

Application Sprague's Falls Manufacturing Company, Limited
Filed January 29, 1915. Decided November 9, 1915.



WASHINGTON
GOVERNMENT PRINTING OFFICE
1915



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INTERNATIONAL JOINT COMMISSION.

CANADA.

CHARLES A. MAGRATH, CHAIRMAN.
HENRY A. POWELL, K. C.
P. B. MIGNAULT, K. C.

LAWRENCE J. BURPEE, *Secretary.*

UNITED STATES.

OBADIAH GARDNER, CHAIRMAN.
JAMES A. TAWNEY.
R. B. GLENN.

WHITEHEAD KLUTTZ, *Secretary.*

HEARINGS AND ARGUMENTS IN RE APPLICATIONS OF THE ST. CROIX WATER POWER COMPANY AND THE SPRAGUES FALLS MANUFACTURING COMPANY LIMITED.

INTERNATIONAL JOINT COMMISSION,
Calais, Me., Tuesday, June 15, 1915.

The International Joint Commission met at Calais Me., on Tuesday, June 15, 1915, to consider the application of the St. Croix Water Power Co. for approval of the diversion of the waters of the St. Croix River, and also the application of the Spragues Falls Manufacturing Co. (Ltd.) for approval of the diversion of the waters of the St. Croix River.

Present:

Obediah Gardner, Charles A. Magrath, James A. Tawney, Henry A. Powell, R. B. Glenn, P. B. Mignault; Whitehead Kluttz and Lawrence J. Burpee, secretaries.

Mr. Gardner presided.

Mr. GARDNER. The International Joint Commission in coming to Calais for this hearing does so under unusual and extraordinary circumstances, largely because of the fact that so few of our people on either side of the boundary line understand what the responsibility, function, and jurisdiction of the International Joint Commission is. Since the organization of the Governments of the United States and Canada, there have continued to arise controversies of more or less importance not only between the two Governments in regard to the rights and privileges of each in the use of the boundary waters but between the people on both sides of the line. The only agency or method of adjusting these differences heretofore has been through the diplomatic departments of the two Governments by way of Washington and London, which did not afford opportunity to all the parties in interest to appear face to face for an adjustment of their differences. For this reason the United States and Great Britain, in 1909, entered into a treaty which, by agreement of the two Governments, created the International Joint Commission, giving to it power to control the diversion or obstruction of all boundary waters from the time of the ratification of the treaty by the two Governments.

PRELIMINARY ARTICLE.

For the purposes of this treaty boundary waters are defined as the waters from main shore to main shore of the lakes and rivers and connecting waterways, or the portions thereof, along which the international boundary between the United States and the Dominion of Canada passes, including all bays, arms, and inlets thereof, but not including tributary waters which in their natural channels would flow into such lakes, rivers, and waterways, or waters flowing from such lakes, rivers, and waterways, or the waters of rivers flowing across the boundary.

Article III provides:

It is agreed that, in addition to the uses, obstruction, and diversions heretofore permitted or hereafter provided for by special agreement between the parties hereto, no further or other uses or obstructions or diversions, whether temporary or permanent, of boundary waters on either side of the line, affecting the natural level or flow of boundary waters on the other side of the line, shall be made except by authority of the United States or the Dominion of Canada within their respective jurisdictions and with the approval, as hereinafter provided, of a joint commission, to be known as the International Joint Commission.

Article IV:

The high contracting parties agree that, except in cases provided for by special agreement between them, they will not permit the construction or maintenance on their respective sides of the boundary of any remedial or protective works or any dams or other obstructions in waters flowing from boundary waters or in waters at a lower level than the boundary in rivers flowing across the boundary the effect of which is to raise the natural level of waters on the other side of the boundary unless the construction or maintenance thereof is approved by the aforesaid International Joint Commission.

In conformity with the treaty and with the approval of both Governments, the International Joint Commission adopted certain rules of procedure to govern the method of bringing cases or disputes regularly and properly before it. Thus Rule VI, subdivision B, provides as follows:

Where any private person seeks the approval of the commission for the use, obstruction, or diversion of such waters, he shall first make written application to the Government within whose jurisdiction the privilege desired is to be exercised to grant such privilege, and upon such Government, or the proper department thereof, transmitting such application to the commission with the request that it take appropriate action thereon, the same shall be filed and be proceeded with by the commission in the same manner as an application on behalf of one or the other of the Governments.

It will be observed that both the treaty and the rules of the commission prescribe that before application to approve plans presented to it and before there is any construction begun on the shores or channels of the waters along the international boundary, such construction shall be authorized by law. The Federal Statutes, volume 11, pages 995 and 996, sections 9 and 10, chapter 425, acts of the Fifty-fifth Congress, provide that the obstruction of navigable waters is forbidden except by the consent of Congress and the approval of the Chief of Engineers and the Secretary of War, as follows:

SEC. 9. That it shall not be lawful to construct or commence the construction of any bridge, dam, dike, or causeway over or in any port, roadstead, haven, harbour, canal, navigable river, or other navigable water of the United States until the consent of Congress to the building of such structures shall have been obtained and until the plans for the same shall have been submitted to and approved by the Chief of Engineers and by the Secretary of War.

Provided, That such structures may be built under authority of the legislature of a State across rivers and other waterways the navigable portions of which lie wholly within the limits of a single State, provided by the Chief of Engineers and by the Secretary of War before construction is commenced.

And provided further, That when plans for any bridge or other structure have been approved by the Chief of Engineers and by the Secretary of War it shall not be lawful to deviate from such plans either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the Chief of Engineers and of the Secretary of War.

SEC. 10. That the creation of any obstruction not affirmatively authorized by Congress to the navigable capacity of any of the waters of the United States is hereby prohibited.

And it shall not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbour, canal, navigable river, or other water of the United States outside established harbour lines or where no harbour lines have been established, except on plans recommended by the Chief of Engineers and authorized by the Secretary of War.

And it shall not be lawful to excavate or fill or in any manner to alter or modify the course, location, condition, or capacity of any port, roadstead, haven, harbour, canal, lake, harbour of refuge, or inclosure within the limits of any breakwaters, or of the channel of any navigable water of the United States, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of War prior to beginning the same.

Therefore in this case, inasmuch as the construction and development of the plans in the completed plant have been finished, before application for approval to the International Joint Commission was made it is evident the War Department could not and would not consider the approval of any plans under like circumstances. The only possible alternative to enable the owners of the St. Croix Paper & Power Co., as well as the Spragues Falls Manufacturing Co., to get their construction on the St. Croix River legalized is to obtain through the Congress of the United States a special act, which also receives the approval of the International Joint Commission. One is as essential as the other; both are absolutely necessary in order for the two corporations to obtain a complete valid title to their works in obstructing and diverting the waters of the St. Croix River, an international stream, navigable under the laws of the United States.

The International Joint Commission, therefore, have deemed it advisable to come here and give opportunity to all parties in interest, in order to ascertain whether or not there are sufficient reasons that these works should be approved. Hence, we are now ready to receive testimony for this purpose. In order that it will be properly made a part of the record I will ask those who appear to furnish their names, so that they may be entered in the record.

APPEARANCES.

For the United States: Mr. Manton M. Wyvell, counsel for the United States; Mr. George W. Koonce, counsel for the War Department of the United States; Maj. F. A. Pope, Corps of Engineers, United States Army, representing the War Department of the United States.

For Canada: C. S. MacInnes, K. C., counsel; W. J. Stewart, chief hydrographer of the Dominion; J. F. Calder, department of Marine and Fisheries.

For the Commission of Conservation (Canada): James White, deputy minister and assistant to the chairman of the Commission.

For the Province of New Brunswick: Hon. John B. M. Baxter, K. C., attorney general of New Brunswick.

For the State of Maine: Oscar H. Dunbar, assistant attorney general, State of Maine.

For the St. Croix Water Power Co.: George A. Curran, counsellor at law, Calais, Me.; Isaac B. Hosford, president of St. Croix Paper Co.; P. T. Whittier, assistant engineer St. Croix Paper Co.

For the Spragues Falls Manufacturing Co.: M. N. Cockburn, K. C., of St. Stephen, New Brunswick.

For the St. Stephen Board of Trade: John N. Flewelling.

MR. GARDNER. Mr. Curran, you are representing the application for approval in this matter; are you ready to present your case?

MR. CURRAN. Yes; Mr. Chairman and gentlemen of the commission. I find myself wholly unfamiliar with the method of procedure before this commission, and I shall do the best I can in stating the case, asking the commission to suggest anything that they think it necessary for me to present to them.

I presume it is not necessary for me to read the petition, because it is a matter of record. It is a petition of the St. Croix Water Power Co. on the Maine side of the river and of the Spragues Falls Manufacturing Co. on the English side of the river, asking for the approval of a dam across the St. Croix River between Maine and New Brunswick. I presume the first thing to explain is how we happened to get the cart before the horse in asking for approval after the work has been commenced.

I may state that the St. Croix Water Power Co. was chartered in 1899, and this charter gave to certain local men on both sides of the river the power to develop and store water at the headwaters of the St. Croix and on the river itself. It was entirely a local matter, growing out of our desire to develop a continuous current to supply our water power. In that company every water-power owner on the river, on either side, was represented. This occurred some five years before the St. Croix Paper Co. was formed. We were not able to get money enough and the industries did not seem important enough for us to spend any money or to do anything under that charter. We organized, however, in 1903, and in 1904 the Todd concern in St. Stephen, which owned a large amount of timberland, and this water power now in question, sold out to some gentlemen, who formed the St. Croix Paper Co. They started with a two-machine paper mill, thinking and hoping that the development at Spragues Fall, where the paper mill is now situated, would be sufficient, but having in mind at the time that if they wanted to increase their business or if the power at Spragues Falls should not prove to be sufficient, in the then condition of the reservoirs on the river, that they could fall back and develop this last power, which we are now developing. Therefore, the matter of the development of this has been in mind, ever since the paper company built the first dam at Spragues Falls.

Along in 1911 they decided they wanted to put in an additional paper machine. The power for their two machines already installed had not really been satisfactory, because at times of drought they would run short, and they decided then that they would put in this additional dam, which had already been in contemplation. I have been their attorney all through. At the time the first dam was built there was no treaty, and I found since, as I think was suggested by a member of the commission yesterday, that every dam and bridge on the St. Croix River ought to have a charter from the United States. We have never had a charter from the United States for any of our railroad bridges, towns bridges, dams, or anything else on that river; the charters heretofore have always been, on the Ameri-

can side from the State of Maine, and on the English side, from New Brunswick, mostly. The last charter, however, that of the Spragues Falls Manufacturing Co., was obtained from the Dominion of Canada. But we ran the business right along with the idea that the State of Maine and the Dominion of Canada had the sole control above the head of navigation on the river. If there is any mistake about that it is mine, and I am willing to say that I can make mistakes as well as anybody else. But there was never any idea on the part of anybody, from the inception of this thing, that the United States was in any way concerned in it. So that, when we came down in 1911, making our plans for this last development, we were simply carrying out the plan which had been formed at the building of the paper mill, and we went ahead just as we did with the other, and just as everybody had been in the habit of doing with their dams and bridges on the river, having no idea that we were violating any law, or neglecting to obtain any approval that the law required us to have. We were certainly not going to spend our money and proceed with that development, if anybody had any idea that there was lacking any necessary requirement. We were not going to do anybody any harm, we were going to benefit everybody, as we have done, by making this large development, and we have created a large business of which everybody on the St. Croix River has approved. That is about all I can tell you as to how we came to do this without approval.

However, some time during the construction of the dam—and Judge Cockburn can tell you about that better than I can—he called me on the telephone and said he had been informed by Mr. Powell that this work of ours should have international approval under this treaty. I then hunted up the treaty and found that there was some provision there in relation to this, and we immediately put in our petition.

The work is now being completed, and that is our position at the present time. We are attempting to comply with the law at a late date; but having done nothing intentionally to disregard any law, and having done nothing that was actually an injury to anybody—on the contrary, we claim that the construction of that dam has been a vast benefit to the whole community on the river ever since the paper mill was built—we ask for approval. There are lots of water powers below this which are, to my mind, doubled in value—I own some of them myself—by the construction of this dam. I think the Canadian Cotton Mill will tell you that they have had their water power vastly improved by the money this company has expended in developing storage all the way up the lakes and on the river. This last construction gives us additional storage, I think the engineer told me, of about 15 square miles in extent, and that adds to the value of every water power and dam site below.

In 1911 we started negotiations to get this land that we were going to flow. We have bought on both sides of the river all the land.

Mr. MIGNAULT. Who has bought? Was it your company? I understand you represent the St. Croix Power Co.

Mr. CURRAN. Yes; the St. Croix Paper Co. has advanced the money.

Mr. MIGNAULT. Who purchased the lands?

Mr. CURRAN. I purchased most of them.

Mr. TAWNEY. For which company?

Mr. CURRAN. For the water-power company some of them, and some of them for the paper company. On the other side of the river, I think Mr. Jordan made the appraisal over there.

Mr. JORDAN. It was Judge Grimmer.

Mr. MIGNAULT. In whose name does the land stand?

Mr. CURRAN. A portion in the name of the St. Croix Paper Co. and a portion in the name of the St. Croix Water Power Co., and when the thing is all completed the paper company will transfer to the water-power company and the Spragues Falls Manufacturing Co. their lands connected with their storage dams, and so on, the paper company taking all the stumpage, crediting to the cost of the land whatever they receive for the stumpage, and taking their pay in stock of these two companies, so that when the thing is completed the land and the dam site and all that will be owned by these two companies, the St. Croix Paper Co. simply taking the stumpage off and holding stock in these two companies.

Mr. MAGRATH. And selling the power to the paper company?

Mr. CURRAN. Selling the power to the paper company.

Mr. TAWNEY. I suppose you contemplate presenting to the commission witnesses to testify to the facts you are just now stating in regard to the flowage lands, and also their ownership.

Mr. CURRAN. Anything that the commission thinks necessary we will present to them. We can bring in our books and witnesses, if necessary.

Mr. MIGNAULT. You are the petitioner here and you have to make evidence on the facts alleged in your petition, and put before us all details.

Mr. CURRAN. I am in an embarrassing position, having to be attorney and witness at the same time; would your procedure preclude that?

Mr. TAWNEY. No; the proceedings here are almost identical with the proceedings in courts of law on the American side as well as on the Canadian side. You have made your application, and in that application you have alleged certain facts on which you base your request for the approval of what has been done, and the proceeding would be exactly as in a court; you should prove your allegation as to the facts on which you are asking the commission to act.

Mr. POWELL. You being a lawyer does not incapacitate you from telling the truth.

Mr. MIGNAULT. I presume you have title to the land?

Mr. CURRAN. We have the title deeds. The title deeds running, however, as I have stated partly to the power company and partly to the paper company. That would have to be supplemented by the statement that ultimately, when they cut the timber off of these lands and get the costs all apportioned, what land the paper company owns of this flowage has got to be conveyed, on the English side, to the English corporation, and on the American side to the American corporation, and the paper company takes its pay in stock of the two companies, so that they will stand the same as they do on the land below where the English company owns the dam site, and the paper company owns it on the American side.

Mr. GLENN. Are the stockholders on the English side and on the American side the same?

Mr. CURRAN. Practically the same.

Mr. MIGNAULT. The paper company and the power company are two distinct corporations?

Mr. CURRAN. Yes.

Mr. MIGNAULT. But I presume the same people are interested in each company?

Mr. CURRAN. The company has no stockholders that would put up any money, except the St. Croix Paper Co. They have to finance the whole thing, and the same is true of the company on the English side.

Mr. MIGNAULT. Make that clear by stating exactly what the position of the two companies is.

Mr. CURRAN. What do you mean by the "position"?

Mr. MIGNAULT. As I understand you, the paper company is financing the undertaking?

Mr. CURRAN. Yes.

Mr. POWELL. If this is to be considered as evidence, Mr. Curran might be sworn, so that it will not be necessary to go through the whole thing again.

(Mr. Curran was accordingly sworn.)

Mr. CURRAN. I wish to state, under oath, that all the statements I have made I now affirm.

Mr. GARDNER. What is approximately the area of these lands that will be submerged?

Mr. CURRAN. The engineer told me, of course I can not swear to it from personal knowledge, that it was 15 square miles.

Mr. MIGNAULT. It would be better if you would put in a plan now, and if you have any title deeds referring to the lands you might put them in also.

Mr. TAWNEY. How long have you acted as counsel for these two companies?

Mr. CURRAN. Ever since they were formed.

Mr. TAWNEY. When was that?

Mr. CURRAN. In 1899 the first one was formed. I am speaking now of the American companies; the Canadian company was formed by Judge Grimmer, formerly a barrister of St. Stephen, who has since gone on the bench.

Mr. TAWNEY. You acted as counsel for these two companies from 1899 up to the present time, and you are their counsel now?

Mr. CURRAN. Yes, sir. Judge Cockburn became counsel in March, 1914, for the concern on the English side. Judge Grimmer was counsel up to that date on the English side, and I have not been entirely familiar with matters on the Canadian side, because that involves Canadian law, with which I am not competent to deal.

Mr. MAGRATH. Speaking of the formation of the St. Croix Co., you said it had bought the property of the Todd corporation.

Mr. CURRAN. The paper company bought property of the Todd corporation.

Mr. MAGRATH. Are these properties on the Canadian side or on the American side?

Mr. CURRAN. On both sides. They owned both these water powers, and one where the mill is and the one above.

Mr. MAGRATH. When was the structure placed across the river at Woodland?

Mr. TAWNEY. May I ask you one question before you give us out the facts in regard to the acquisition of these lands, etc.; how were these companies created?

Mr. CURRAN. The St. Croix Water Power Co. was created by an act of the Legislature of the State of Maine in 1899, chapter 203, as set out in the petition.

Mr. TAWNEY. Are the stockholders in one company the same as in the other?

Mr. CURRAN. Practically the same.

Mr. TAWNEY. Are the two companies controlled by practically the same men who are serving on the boards of directors of each company?

Mr. CURRAN. Undoubtedly.

Mr. TAWNEY. That is a fact, is it?

Mr. CURRAN. I think so.

Mr. MIGNAULT. The Spragues Falls Co. and the St. Croix Power Co. are composed of the same incorporators?

Mr. CURRAN. I can not say about the original incorporators, but I should say they were somewhat different; but the actual control of the two companies is in the same men to-day and has been ever since the development.

Mr. TAWNEY. That is due to the fact that the same men serve on the boards of directors of each company?

Mr. CURRAN. Yes.

Mr. TAWNEY. And both companies are under identically the same control, so far as the boards of directors are authorized, by the charter of the two companies, to control.

Mr. CURRAN. The same.

Mr. MIGNAULT. Does that apply to the St. Croix Paper Co.?

Mr. CURRAN. The same applies to that. Practically these two are subsidiary companies of the paper company. The paper company has to put up all the money for all three of the companies.

Mr. POWELL. Is that all the legislation there is bearing on the matter?

Mr. CURRAN. The State of Maine charter was granted in 1899 and extended in 1901.

Mr. POWELL. Is there some legislation in the Province of New Brunswick?

Mr. COCKBURN. No; the act of incorporation is by a Canadian statute; New Brunswick has not legislated.

Mr. POWELL. Are there any letters patent in the Province of New Brunswick?

Mr. COCKBURN. No.

Mr. MAGRATH. Apparently your legislation on the Canadian side commences in 1902 and your legislation on the American side commenced in 1899; that was the first legislation in connection with the holding company, the paper company?

Mr. CURRAN. The paper company was never formed by legislation. That was organized under the general statutes of Maine, authorizing the formation of corporations, in December, 1904.

Mr. POWELL. It was formed by letters patent under your joint-stock companies act.

Mr. CURRAN. Yes; under the general act.

Mr. MAGRATH. And it was only then you started development on the river under these charters?

Mr. CURRAN. Yes; that is the first time we were able to get any money to do it, and they have put up all the money since. Practically they are owners of both dams, but acting through these other corporations.

Mr. POWELL. Have you a copy of the articles of incorporation of the holding company here?

Mr. CURRAN. I have not got it here, but I can get it at the office.

Mr. POWELL. We had better have that so that we may know where we are. Under these acts of incorporation you went to work and purchased certain lands?

Mr. CURRAN. Yes, sir.

Mr. POWELL. Did you purchase the site of your lower dam at Woodland?

Mr. CURRAN. Yes; that and this present one.

Mr. POWELL. Let us take one at a time; you purchased the site at Woodland first and afterwards you purchased the site of the upper dam at Grand Falls?

Mr. CURRAN. We purchased both at the same time.

Mr. POWELL. And you have the deeds of these?

Mr. CURRAN. Yes.

Mr. POWELL. And they give you the location of where both dams are?

Mr. CURRAN. Yes.

Mr. POWELL. Complete?

Mr. CURRAN. Yes; entire title.

Mr. POWELL. In addition to that you went to work and bought lands for flowage purposes?

Mr. CURRAN. Yes.

Mr. POWELL. Now, go on with your statement.

Mr. CURRAN. I put in this plan as Exhibit A, which shows the location of the dams, the paper mill, and all the lands owned by the paper company, the St. Croix Water Power Co., and the Spragues Falls Manufacturing Co., both in Maine and New Brunswick.

(Plan filed as Exhibit A.)

Mr. POWELL. Does the plan distinguish the respective ownership?

Mr. CURRAN. I now produce as Exhibit B a plan containing practically the same information as plan A, but made up in 1914, which is later than the previous plan, and showing the lands acquired since the making of the previous plan and stating on the face the plan the respective ownerships.

(Plan marked as "Exhibit B.")

Mr. MIGNAULT. The plans are put in now and you can proceed as you would in a proceeding before a court of law to make the best evidence you can.

Mr. CURRAN. Do counsel on the other side raise any point about the ownership?

Mr. BAXTER. I do not understand Mr. Curran to say whether between the two falls on the New Brunswick side they have acquired all the property.

Mr. CURRAN. They have located——

Mr. BAXTER. I did not ask about what was located, but whether in point of fact all the property of the New Brunswick side between the two falls has been acquired.

Mr. CURRAN. Spragues Falls and Grand Falls?

Mr. BAXTER. Yes.

Mr. CURRAN. I am advised it has. The purport of that plan is to show the names of persons from whom the land was bought.

Mr. BAXTER. That may be a very material fact, and I think we ought to know about it. I throw no doubt on your statement, Mr. Curran, of course, but it may be so important that you ought to be sure of it.

Mr. CURRAN. I think we can show you the deeds.

Mr. BAXTER. If you can examine them yourself and put yourself in a position to say it is a fact, that will be sufficient. Personally, I do not care to examine the deeds, nor would I be able to ascertain the fact if I did examine them cursorily, but if you examine them and say so, that will be sufficient.

Mr. CURRAN. I can say that so far as my capacity goes, I have acquired for these companies every inch of soil there the first time they built on each side of the river, up to and including the dam now in question, and beyond that dam to the farthest extent that we flow on either side of the river.

Mr. TAWNEY. If you have the titles showing that, you might bring them here and show them to counsel representing the two Governments.

Mr. CURRAN. I have just said I would do that.

Mr. TAWNEY. That would avoid the necessity of putting them in the record, and then counsel can concede as to your ownership as represented in these deeds.

Mr. BAXTER. Is it so, that on the New Brunswick side the titles were acquired by the Spragues Falls Co. and on the Maine side by the St. Croix Water Power Co.; is that the way they are held?

Mr. CURRAN. Between the two dams, do you mean?

Mr. BAXTER. Between the two dams.

Mr. MACINNES. That is what the petition states.

Mr. BAXTER. I can not tell very much by examining your deeds; you can make a statement as to that.

Mr. MIGNAULT. I understand that no titles are in the St. Croix Power Co. but that the titles are in the St. Croix Paper Co.

Mr. CURRAN. Some in each of the three companies, all to be apportioned later on, as I described before.

Mr. MIGNAULT. If you bring the titles here they may be agreed upon.

Mr. BAXTER. Personally, I am willing, so far as I am concerned, to take Mr. Curran's statement, so long as he makes sufficient examination to enable him to make a statement positively.

Mr. CURRAN. I am reminded that all the land between the two dams, on the English side, was owned by Todd, and conveyed to them and the Spragues Falls Co.

Mr. BAXTER. That is satisfactory.

Mr. MACINNES. That corresponds with what is stated in the application.

Mr. POWELL. What is the law of the State of Maine as respects the ownership of the riparian property?

Mr. CURRAN. The courts have decided over and over again that it goes to the thread of the river.

Mr. POWELL. That is, the center of the stream.

Mr. CURRAN. Yes.

Mr. POWELL. I will call your attention particularly to the point where the canal leaves the River St. Croix and the point at which it again debouches into the River St. Croix below these works; does one or other of your companies own all the bed of the stream and the riparian rights?

Mr. CURRAN. Every inch.

Mr. POWELL. Between these two points?

Mr. CURRAN. Every inch.

Mr. BAXTER. You are speaking of the Maine side?

Mr. CURRAN. Both sides, the Maine side particularly.

Mr. BAXTER. There will be a question further on as to the titles on the New Brunswick side, as to the particular boundary of the grant. That question will come up with us.

Mr. CURRAN. We own also all the land between the canal and the river.

Mr. TAWNEY. Have you at any time since the completion of the upper dam received any complaint from any riparian owner, or anyone who claims to be a riparian owner, between the lower and upper dams, of any injurious effects resulting from the construction of these works?

Mr. CURRAN. Never the slightest.

Mr. TAWNEY. On either side?

Mr. CURRAN. On either side, from the dam clear up. We bought and paid everybody who had any ownership there and took their deeds.

Mr. POWELL. As a matter of fact, I suppose there were some kickers, and you bought them out?

Mr. CURRAN. There was nobody kicked; everybody was willing to sell the land to us for the purpose of this development. There was a question of price; that is all they kicked about.

Mr. TAWNEY. Since the completion of the dam, and the overflow of the land incident to the storage of the water above, do you know of any complaint by any individual claiming to be a riparian owner, between the upper end of the flowage lands and the lower dam?

Mr. CURRAN. Not one word of complaint from anyone.

Mr. POWELL. And if there was complaint it was gotten over by buying the proprietors out?

Mr. CURRAN. That is it.

Mr. POWELL. You bought out the Hill estate?

Mr. CURRAN. Yes; that is a matter of trading.

Mr. TAWNEY. Perhaps there is some question which Mr. Cockburn would like to mention about the company on the Canadian side; this would be a good opportunity to do so.

Mr. COCKBURN. I have no statement to make.

Mr. TAWNEY. Is there any question you desire to ask Mr. Curran for the purpose of bringing out any information he has not covered?

Mr. COCKBURN. I think not.

Mr. MIGNAULT. Have there been any complaints from any users of water in the St. Croix River?

Mr. CURRAN. On the contrary, the users of water, so far as manufacturers are concerned, have all said to me that they were much better off than they were before we built the dams.

Mr. POWELL. And for two reasons; they have more water to use and also they have a more uniform flow.

Mr. CURRAN. Yes. I have been attorney for the Canadian cotton mill here for quite a number of years and I have known how they felt about it, and while perhaps it is a little inconvenience to them on Monday morning after the Sunday shutdown, still they say they do not want to complain about that because they get so much greater flow of water all through the rest of the week. The shutting down is really unavoidable, but every mill owner and other water user on the river has been benefited by these dams.

Mr. GLENN. What about droughts?

Mr. CURRAN. We used to have long droughts; but now, by reason of this storage all the way up, we have a storage in the lakes. The paper company had to take charge of the lakes and fix up their dam so as to hold the water back in the lakes in high-water time and use it in droughts. That has done away very largely with the drought business.

Mr. WYVELL. You intended, as soon as convenient, to make application to Congress?

Mr. CURRAN. We have already made application.

Mr. MAGRATH. I would like to have on the record the history of the development since the companies were incorporated. We know when the paper company was brought into existence, and I would like to know what have been their activities since. They started to build a paper mill and they started to build dams, and I wish to know the history of the enterprise which has taken and is using these waters.

Mr. TAWNEY. Would it not be well to get that information from the officers of the company who were directly in charge of it?

Mr. MAGRATH. So long as it is on the record I am satisfied.

Mr. CURRAN. I can hardly depend on my memory to state that.

Mr. TAWNEY. The president of the company is here, and there are other officers present also.

Mr. MAGRATH. Mr. Curran, you have the officers of the company here who can furnish that evidence.

Mr. MACINNES. Paragraph 7 of the application of the St. Croix Water Power Co. states that the Spragues Falls Manufacturing Co., which is the Canadian company, has purchased the lands similarly situated on the New Brunswick side of the boundary line—"similarly situated" is the language used in the preceding paragraph 6—can you show us on the plan the point from and to which the Canadian company has acquired lands on the New Brunswick side of the river, or can you tell the commission at what point the acquisition of lands commences and at what point it ceases?

Mr. CURRAN. The acquisition of lands on the Canadian side commences at the dam at Spragues Falls, where the paper mill is, and extends up to the other dam, and then above the other dam as far as the flowage goes.

Mr. MACINNES. That land is owned and held by the Canadian company?

Mr. CURRAN. I can not tell you whether it has as yet been deeded to them; in the ultimate arrangement all that land on the Canadian side will have to go to them, and the paper company will pay for it in stock.

Mr. MACINNES. And the names shown on that plan are those of the individuals from whom you have purchased the lands on the Canadian side?

Mr. CURRAN. I think so.

Mr. MACINNES. And the deeds of that property will be available for the attorney general of New Brunswick or myself at any time?

Mr. CURRAN. At any moment you want them they are at my office.

Mr. MACINNES. Is all the power that is developed by the Grand Falls power plant disposed of to the paper company?

Mr. CURRAN. They use it all. They need it all.

Mr. MACINNES. Is that under a written contract; is there a contract between the two companies?

Mr. CURRAN. We have not any contract. I have been perhaps rather neglectful of that. They all being the same men, I have been waiting for the thing to get into shape to deed to them the lands and figure how much the actual cost of them was. When that is done, the deeds will go, on the Canadian side, to the Spragues Falls Co. for the entire distance up and down. They have some of them now; how much I do not know.

Mr. MACINNESS. As it stands the paper company is having the power from this plant without any contract?

Mr. CURRAN. Yes; you see they have only begun using that power this spring.

Mr. GLENN. It is under the control of the same board of directors.

Mr. CURRAN. It is all the St. Croix Paper Co., to get right down to the plain English of it. The local corporations, three of them, and the paper company are the only ones that have any money in it.

Mr. TAWNEY. You represent and you appear here for the paper company as well as the St. Croix Water Power Co.?

Mr. CURRAN. Yes.

Mr. POWELL. You are authorized to speak when you say the former is the holding company.

Mr. CURRAN. It is acting as a holding company now, the titles to be vested as soon as the thing is ready.

Mr. TAWNEY. You have no written contract between these several companies?

Mr. CURRAN. No. It is all the same men. It would be a contract between the same men, although they are different companies. They are the same interests. We have a lot of land we bought from the State of Maine. It is covered with timber. The paper company will strip off that land and use the lumber, and then the cost of that flowage land, which ultimately may be conveyed to the St. Croix Water Power Co., will be what we pay the State, less what we get for stumpage on it.

Mr. MACINNES. With regard to the water-power development at Spragues Falls or Woodland, that is developed on the Maine side?

Mr. CURRAN. Yes.

Mr. MACINNES. And the power there is used by the paper company?

Mr. CURRAN. All.

Mr. MACINNES. What is the extent of the development at Spragues Falls in horsepower?

Mr. CURRAN. I would rather you should get that from the engineer; I have a sort of a vague idea.

Mr. MACINNES. In the same way, one of your engineers can tell the commission what is the extent of your present and possible development at Grand Falls?

Mr. CURRAN. Yes; the engineers have all that information exactly.

Mr. MAGRATH. And do they also know about the approval of these plans? Were they approved by the State of Maine?

Mr. CURRAN. They were approved by the engineer of the State of Maine.

Mr. MAGRATH. And not by the War Department?

Mr. CURRAN. No. As I say, none of us had any idea that the United States had any concern there at all, because we never went beyond the State authorities. We had the State engineer down, and he dictated as to how we should build our dam so as to prevent flowing out Princetown, the town above. He provided for the proper passageway of the logs, and the fish commissioners of the State of Maine and of New Brunswick have been in conference as to what sort of fishway we should put in the new dam.

Mr. MACINNES. Paragraph 3 of the application of the St. Croix company states that the plans of the dam at Grand Falls were submitted to and approved by the water storage commission of the State of Maine. Are you putting in a copy of the approval of that commission?

Mr. CURRAN. We have not put it in, but I can get it and put it in.

Mr. MACINNES. I understand it contains certain conditions with regard to the levels to be maintained, and so forth?

Mr. CURRAN. Yes; the levels have been fixed.

Mr. MACINNES. My information is obtained from the third annual report of the State of Maine Water Storage Commission, 1912, where there is a statement given as to these works at pages 93 and 94, but perhaps a copy of this document had better be put in before the commission, as it will show the conditions there.

Mr. CURRAN. I will find the document itself. No doubt the matter is correctly stated in that book.

Mr. MACINNES. You think it would be?

Mr. CURRAN. Oh, yes; I will put in the book for that purpose.

(Report of the Water Storage Commission of the State of Maine, 1912, to be put in with special reference to pages 93 to 96.)

Mr. TAWNEY. Does that contain the approval of the State of Maine?

Mr. MACINNES. Not the actual document. It contains a reference to certain conditions there. It states that an agreement was made which contains the following provisions among others:

1. That the St. Croix Paper Co. is to so construct its Grand Falls Dam that the backwaters of same shall not exceed in elevation 204.31 feet, State water storage commission datum, equivalent to 199.21 main central railroad datum, at a point just below the highway bridge at Princetown, Me.

Other conditions are stated, but that struck me as one of some importance.

Mr. TAWNEY. Has that condition been complied with?

Mr. CURRAN. It has.

Mr. POWELL. That is a condition which may vary from day to day.

Mr. CURRAN. They were not to go above a certain mark, and the minimum was also fixed.

Mr. POWELL. That may vary from day to day.

Mr. CURRAN. It never goes above it, but it goes below it a great deal, and they fixed a minimum flow for us there; they will not let us go below a certain point of water.

Mr. KOONCE. The Government of the United States has nothing to do with the question of the property rights or the acquisition of property along the shores of the river. Riparian rights for the production of water power is a State matter altogether, and I have no desire to enter into that question at all. Did I understand you to say, Mr. Curran, that this proposition had its inception about 1899?

Mr. CURRAN. Yes.

Mr. KOONCE. Did you take into consideration the statutes of the United States with reference to the protection of the navigable waters of the United States?

Mr. CURRAN. No, as I say, we always had the idea, perhaps without taking it up very closely, that the United States authority applied only to vessel navigation. Of course, under the State law, it is a navigable river if it is floatable for logs.

Mr. KOONCE. You are not familiar then with the decision of the Supreme Court of the United States, which says that floating logs is a natural system of commerce and navigation.

Mr. CURRAN. Yes; that is the same law that our State courts have laid down.

Mr. KOONCE. As a matter of fact, was there any navigation on the upper part of the St. Croix River at the time you started this proposition, I mean in the shape of floating logs?

Mr. CURRAN. Yes, floating logs; we floated logs ourselves there.

Mr. KOONCE. In the construction of your dam, did you make any provision for this form of navigation?

Mr. CURRAN. Yes, indeed; and I think ample provision. We put in a very nice log sluice there which the commission saw yesterday.

Mr. KOONCE. And, as you say, you did not take into consideration this statute, particularly section 10, which says that the creation of any obstruction to the navigable capacity of any water of the United States is forbidden, and that it shall not be lawful to alter or modify the course, location, or condition of any navigable stream unless authorized by the Secretary of War.

Mr. CURRAN. I have confessed my ignorance of that, and my clients are not responsible.

Mr. KOONCE. The fact that this is on a navigable stream, and even if your dam had been built 100 miles above, where there is no navigation at all, this law would still have applied, was not taken into consideration by you at the time; you did not consider that anything of that kind, however done or wherever done, is within the prohibition of the statute?

Mr. CURRAN. I understand that now.

Mr. KOONCE. I am not asking this question with the view of any opposition to your application.

Mr. CURRAN. We are asking Congress to cure that, on the ground that it was an error committed without harm to anybody and with benefit to many.

Mr. KOONCE. I wish to have this put in such state that it will meet the favor of Congress.

Mr. CURRAN. I understand. We were wrong in not realizing the difference in the law between an international stream and a State stream and in treating this as a State stream.

Mr. KOONCE. You recognized the fact that the stream was navigable for floating logs?

Mr. CURRAN. Yes.

Mr. KOONCE. And in the construction of your works you made provision for that?

Mr. CURRAN. We did.

Mr. KOONCE. And the provision you made was equal to or better than that which existed in its natural state?

Mr. CURRAN. Much better than it was before. We ourselves are the largest log floaters there, so that it was to our interest, as well as to the interest of everybody else, to make it as good as we could.

Mr. KOONCE. There has never been any complaint on the part of the floaters of logs or the users of navigation there against your works?

Mr. CURRAN. There never has been the slightest complaint whatever.

Mr. MIGNAULT. I notice in paragraph (i) of the petition of the Spragues Falls Manufacturing Co. (Ltd.) that certain provisions of their statute of incorporation are given, and among other conditions they are bound to build without delay and maintain in said dam such fishways and of such design as may be prescribed by law; have you built fishways in the dam, and do you maintain them? Do you maintain fishways such as are described?

Mr. COCKBURN. That matter has been taken up by us with the department of marine and fisheries of Canada, and it now stands awaiting the result of the action of the commission in this matter. The minister of marine has assured me that no action will be taken by his department—and the inspector of fisheries is here to confirm what I say—until a decision has been come to in this matter.

Mr. MIGNAULT. Are there no fishways in the dam?

Mr. COCKBURN. There has not been one constructed yet. The company is waiting to get the approval of the commission for the work that has been done, and then they will apply to the department of marine and fisheries and construct a fishway wherever the department desires. Is that true, Mr. Calder?

Mr. CALDER. Yes.

Mr. COCKBURN. The matter has not been neglected, but it has not yet been consummated. The company would much prefer to construct a fishway through the canal, if the commission approve of that canal, and it is allowed to remain as it is. The minister of marine assured me personally, in an interview I had with him at Ottawa, that there would probably be no objection to that being

done. The fishway will be constructed, but it would be less expensive for the company to do if they knew where it should be constructed. Mr. Calder, of the fishery department, is here, as you know, and he will verify what I have said.

Mr. POWELL. Do you personally know about the titles on the Canadian side?

Mr. COCKBURN. They were all acquired before I became connected with the company.

Mr. POWELL. Have you searched them?

Mr. COCKBURN. No; I have only been in the company since March, 1914. Judge Grimmer was my predecessor, and it was through him these titles were acquired. I have always had the impression, although I may be wrong in that, that the Todd people owned all the lands between Sprague Falls and Grand Falls, and that they were transferred in the original conveyance from the incorporators to the company. There might possibly be, and some members of the company have suggested this to me this morning—there might possibly be some pieces of land between these two points which have not yet been acquired by the company, but they are elevated lands which are not affected by the flowage, and from the owners of which no complaint has been made.

Mr. WYVELL. Is there any way at all by which the fish can go up and down now?

Mr. COCKBURN. At the present time I think there is none.

Mr. WYVELL. It would be a good plan to make some temporary arrangement so that the fish could pass up and down.

Mr. COCKBURN. The company will make a permanent arrangement just so soon as they can.

Mr. WYVELL. I imagine that a temporary construction might be put in there now; it might be of some consequence that you should do that now.

Mr. COCKBURN. We appreciate that, and we did hope that this matter would be disposed of earlier and that a fishway might be constructed before this. That is the reason there has been delay. We admit there has been some delay, but we have been waiting on the action of the commission, and as soon as that is arranged and the commission gives a decision, if they give a decision by which that canal will be permitted to remain, there will be a fishway constructed forthwith at the expense of the company.

Mr. GARDNER. That would be subject even then to the action of Congress.

Mr. COCKBURN. Subject to the action of Congress and the department of marine and fisheries of Canada.

Mr. WYVELL. It occurs to me that it would be a good scheme to make some kind of a temporary arrangement now. Permanent injury may be done to the fishing by the dam which is there at present.

Mr. KOONCE. It is your intention, of course, to construct a fishway?

Mr. COCKBURN. Oh, yes; just as soon as this matter is settled; it is supposed to be quite a fishing stream.

Mr. GLENN. Of course if you receive the permission of Congress it will only be on condition that you construct a proper fishway.

Mr. COCKBURN. We will do so; we have a fishway at Woodland.

Mr. WYVELL. I do not follow you that there is any necessity for waiting for the action of Congress to construct this fishway.

Mr. KOONCE. Having your dam built there and no fishway it may be that the fish would be injured.

Mr. COCKBURN. We expected to have the fishway constructed by this time, and we are sorry for the delay, and we will not allow it to continue longer.

Mr. KOONCE. In any legislation which you will get from Congress there would certainly be a provision that you should construct a fishway.

Mr. COCKBURN. And whatever fishway we construct must also have the approval of the department of marine and fisheries for Canada.

Mr. KOONCE. I would suggest that if you wait until you get the approval of the United States Government to this proposition there may be serious injury done to the fishing industry.

Mr. COCKBURN. I daresay it would be perfectly safe for us to construct a permanent fishway and to take our chances on getting approval.

Mr. WYVELL. Yes.

Mr. KOONCE. It would be an inducement to Congress.

Mr. COCKBURN. We will deal with that at once.

Mr. GARDNER. I understand that the president of the St. Croix Paper Co. is present and it would be convenient to hear him now.

ISAAC B. HOSFORD, president of the St. Croix Paper Co., sworn:

Mr. GARDNER. Mr. Hosford, you are the president of three of the companies?

Mr. HOSFORD. One of them.

Mr. GARDNER. How long have you been holding that position?

Mr. HOSFORD. For the first two years Mr. Frank Todd was president, and I succeeded him.

Mr. GARDNER. Would you tell the commission in your own way the history of the construction of these plants?

Mr. HOSFORD. Do you mean the plants in general?

Mr. GARDNER. Yes.

Mr. HOSFORD. I am not sure that my memory will be perfect on exact dates, but I can give you a concrete story. The Todd family of St. Stephen, New Brunswick, owned a large amount of timberlands, and acquired with these timberlands the water power at Spragues Falls, or Woodland as it is called now, and also the water power at Grand Falls, which was seen by the commission yesterday. Various attempts were made to develop this property, which resulted in finally meeting the present owners of which I am president, and a corporation was formed which purchased from the Todds at that time all the timberlands, amounting to something like 210,000 acres, the water powers at Woodland, the water powers at Grand Falls, and with that the charters of the various companies both in Maine and the Province of New Brunswick, these charters being the St. Croix Water Power Co., of Maine, the Spragues Falls Manufacturing Co., chartered by the Dominion Government, and I think a little river and mill in the Province of New Brunswick, somewhere in the wild country, where they had the right to develop more water and allow storage on the lakes. These all came into our possession, and a company was formed and we built up Spragues Falls.

From the outset not a dollar has been put up by anybody, except it comes indirectly from the St. Croix Paper Co., to finance all these concerns. These charters required improvements to be made in the names of these charters, so that as we spent money—the St. Croix Paper Co., I mean—as we spent money and built dams costing \$8,000, \$10,000, \$15,000, \$2,000, it was all charged and became the property of the St. Croix Water Power Co., of Maine, of which we were owners, standing in the name of that as an improvement company and the conservor of water. In New Brunswick the title of the land on the end of the Woodland Dam was the Spragues Falls Manufacturing Co., to cover that charter, and I think to qualify themselves—that can be corroborated by the treasurer—there was a 99-year lease taken by the St. Croix Paper Co. for the land on which that dam is. At all events, the St. Croix Paper Co. went into the business, and they had a very good year of water, and they felt they were justified in enlarging and they decided to do so. Then came years of drought, which required the St. Croix Paper Co. to buy large quantities of raw material outside when they had the wood and the unutilized water power above. So they went forward under exactly the same charter as they built under at Woodland previous to this treaty, and they acted exactly under that charter at Grand Falls as they did at Woodland. Grand Falls was developed, as it was covered by the original charter, Grand Falls being purchased with the original purchase. That property was costing us a great deal of money, and hard times coming on we stopped a few months and continued again, and I think it was completed last fall. In the meantime we enlarged our mills at Woodland to provide for the new power we would receive from Grand Falls, and we created a town there. When we started there there was not a building of any account to be found, and there is a nice town there now.

Mr. TAWNEY. What is the size of the town of Woodland now?

Mr. HOSFORD. It has a population of more than 1,500, and there are over 600 school children, and 150 new children of 5 years of age coming in this fall. We are very proud of our schools.

Mr. MAGRATH. What proportion of your timberlands are held on the Canadian side?

Mr. HOSFORD. I think, to the best of my belief, there are two-thirds on the Canadian side.

Mr. TAWNEY. That is, owned by the paper company?

Mr. HOSFORD. Yes; they are owned in fee, on the Canadian side; I will except from that 16,000 acres of Government limits which are down the river between here and Vanceboro, which are not held in fee. We have a great many more lands now than we had originally.

Mr. MAGRATH. What quantity of land have you flooded in connection with the dam now under consideration?

Mr. HOSFORD. The pond itself has somewhere about $10\frac{1}{2}$ miles area, and previous to being flooded it was only a narrow river.

Mr. MAGRATH. What proportion of that land is on the Canadian side and what proportion on the American side?

Mr. HOSFORD. The map will readily show that.

Mr. COCKBURN. There are 181.1 acres flooded in New Brunswick. The total flowage is 7,290.1 acres, which leaves about 7,100 acres in the State of Maine.

Mr. HOSFORD. That land has all been paid for. In some cases we purchased much more land for that flowage than was flooded; it was as cheap to buy the lot as it was to pay for flowage.

Mr. COCKBURN. The company paid \$181,453.45 for flowage rights on both sides.

Mr. WYVELL. Do you own all the land flooded by the dam?

Mr. HOSFORD. Every inch of it.

Mr. WYVELL. What do you mean by saying it was cheaper to buy the land?

Mr. HOSFORD. It was much cheaper to buy the lands outright. We closed several roads, and we paid a man for his farm instead of paying for the flowage. It may be interesting to state that in the town in which we operate in Maine, the small town of Baileyville, we pay 95 per cent of the taxes, and for that reason we had to protect ourselves.

Mr. MAGRATH. What is the capacity of your paper plant?

Mr. HOSFORD. Forty-six thousand tons per year.

Mr. MAGRATH. And that increased production, you say, necessitated you taking this additional power?

Mr. HOSFORD. When we came to this country the records of the flow of water in the river and the rainfall were very meager, and we started in at 18,000 tons of paper a year, and finding, as we went along, what we could do by conserving water and building dams and making reservoirs we naturally have increased to what we considered was safe. It was a new country altogether when we started in here.

Mr. GARDNER. Can you state approximately what your total investment is?

Mr. HOSFORD. Do you refer to storage or timber lands?

Mr. GARDNER. Everything, as associated with this water power.

Mr. HOSFORD. Outside of timberlands we have invested \$3,500,000, and that does not include the town site or the dwelling houses or anything of that sort.

Mr. GARDNER. And that is an investment directly in connection with the water power?

Mr. HOSFORD. Yes; it is an investment outside of the timberlands.

Mr. POWELL. I want to ask you a question or two. Take your pulp mill first, what is approximately the cost of that development?

Mr. HOSFORD. I can not give that from memory; it would be difficult to divide each part of the concern.

Mr. POWELL. How much did the power development and the storage development at Grand Falls cost?

Mr. HOSFORD. I think about \$1,100,000.

Mr. POWELL. At all events it cost over \$1,000,000, and the object of that was to provide power to be mostly applied to the pulp and paper mill at Woodland?

Mr. HOSFORD. It was a necessity.

Mr. POWELL. It was auxiliary to the paper mill at Woodland.

Mr. HOSFORD. Oh, yes; it was the life of it.

Mr. POWELL. And you have diverted the water by this canal and developed electric power there and you transfer the electricity to the lower mill?

Mr. HOSFORD. Yes.

Mr. POWELL. And in the second place you have the benefit of the water that is stored, going at a more uniform flow to the lower mill.

Mr. HOSFORD. Yes; and that is not the natural increase of the new development at Grand Falls, but going farther up the lakes, eastern Grand Lake into Vanceboro, and Big Lake, and so on, all with dams and storage.

Mr. POWELL. You speak about the development at Grand Falls being necessary or essential to the work below—about what proportion of development below is contingent for its existence upon the development above; two-thirds or one-third?

Mr. HOSFORD. I would say that fully one-third of the Woodland development is dependent on Grand Falls.

Mr. POWELL. And without this dam and that canal and diversion of water you would not be able to carry that one-third on?

Mr. HOSFORD. We might at a loss, as has been proved.

Mr. MACINNES. Where is the product of your company sold?

Mr. HOSFORD. I would have to answer that question in a general way.

Mr. MACINNES. Is it in the United States or in Canada?

Mr. HOSFORD. We can not sell anything in Canada; they can sell everything here.

Mr. MACINNES. Is it all sold in the United States?

Mr. HOSFORD. Yes; we could not send paper bags over to Canada.

Mr. MACINNES. You could send them, but you would have to pay the duty.

Mr. POWELL. Your engineers are here?

Mr. HOSFORD. Yes.

Mr. POWELL. They would know the cost of the work and the different portions of it, the cost of dam, the cost of diversion, and the cost of the power.

Mr. HOSFORD. I do not think the engineer could give you that. He could give you the power development and the head and fall.

Mr. COCKBURN. I think that statement could be given by the bookkeeper. I have a statement here which has been given by the bookkeeper to me.

Mr. TAWNEY. If anyone questions that statement, the bookkeeper could be brought here to verify it, as being correct, and it would save the trouble of bringing the books.

Mr. COCKBURN. I went to Woodland to get this statement, and the bookkeeper took it from the books when I was present and gave me the figures.

Mr. MIGNAULT. Is there anybody here who can give us the physical facts, the quantity of water diverted, the quantity in the river, and all such other facts?

Mr. HOSFORD. Yes; I think there is.

Mr. POWELL. So far we are innocent of these facts as Mr. Curran was innocent of the requirements of the law of the United States and of Canada in respect to these rivers.

Mr. CURRAN. I certainly was; but I almost think we were excusable a little; the law was passed recently under this treaty and there was no notice in any way of it, and so far as we can find out nobody in this section of Maine had ever heard of it.

Mr. POWELL. And I happen to know myself that you did not know that the treaty affected it in any way or that the commission had any jurisdiction over it.

Mr. CURRAN. Not the slightest. We never considered this part of the river as navigable. We knew that navigation came as far as the bridge at Calais, but we could not see how you could navigate above it.

Mr. P. T. WHITTIER, assistant engineer of the St. Croix Paper Co., sworn:

Mr. CURRAN. How long have you been in the service of the paper company? Did you come here at the time of the Grand Falls Dam?

Mr. WHITTIER. No, sir.

Mr. CURRAN. How soon after?

Mr. WHITTIER. There was an intermission when the work was stopped. When it was started again I came here in connection with it. That was about a year and a half ago. Before that I had been with the St. Croix Paper Co. on other parts of their work.

Mr. CURRAN. Would the commission be willing to ask the witness what they want to know?

Mr. TAWNEY. We are here for the purpose of hearing such testimony as the applicant has to offer in support of such facts as he presents to the commission in asking the commission to approve or disapprove of this work, and counsel for the applicant ought to know what the facts are in his possession, to present to the commission, better than the commission does. The procedure here is exactly the same as in a court of law.

Mr. CURRAN. Can you tell us, Mr. Whittier, what the head of water is at the Grand Falls Dam?

Mr. WHITTIER. It is about 48 feet; it varies, of course.

Mr. CURRAN. What is the length of the dam from shore to shore?

Mr. WHITTIER. It is about 1,100 feet; it is built of reinforced concrete.

Mr. CURRAN. What kind of a dam is it called?

Mr. WHITTIER. It is called an Ambursen dam; the design is patented by the Ambursen Co.

Mr. CURRAN. What are the patented features?

Mr. WHITTIER. The fact that it has not sufficient weight to withstand the pressure of water. It is like an old wooden horse dam, and the weight of the water holds the dam down against the bed of the stream.

Mr. POWELL. Do you know what the cost of that dam was?

Mr. WHITTIER. I do not.

Mr. MIGNAULT. What is the quantity of water developed through that power canal?

Mr. WHITTIER. The power canal was designed for about 2,750 cubic feet a second. The dimensions are set forth on the blue print filed with the commission and I have not them in mind.

Mr. MIGNAULT. You say it was built for a flow of 2,750 cubic feet per second?

Mr. WHITTIER. Yes, sir; that amount is not used at present, because, as you will remember, there is a space left in the power house for a third turbine.

Mr. MIGNAULT. How much is used now?

Mr. WHITTIER. About two-thirds of the 2,750 feet.

Mr. MAGRATH. What horsepower does that produce?

Mr. WHITTIER. About 8,000.

Mr. MIGNAULT. Is that now, or as contemplated?

Mr. WHITTIER. Now.

Mr. MIGNAULT. How much is contemplated?

Mr. WHITTIER. 12,000 horsepower.

Mr. COCKBURN. What power does that give at the Woodland mill?

Mr. WHITTIER. Approximately 9,000 of the 12,000 horsepower will be developed to the machines at Woodland.

Mr. MIGNAULT. What is the width of the river at the dam?

Mr. WHITTIER. At present, at the dam, it is about the width of the dam. Of course, before the dam was built the river was very much narrower. I should say it was about 100 feet at the point where the dam is.

Mr. MIGNAULT. I suppose the plan shows where the international boundary passes?

Mr. WHITTIER. Yes; the plan shows the original river, and the center line of the original river was the boundary line, as I understand it.

Mr. MIGNAULT. And I understand that all the water of the river is diverted through the power canal.

Mr. WHITTIER. In times of low water and drought all of the water would pass through the wheels, but in time of high water nowhere near the whole of it goes through the wheels.

Mr. POWELL. What is the average natural flow of the stream?

Mr. WHITTIER. I could not tell that.

Mr. POWELL. Do you know the variance of the flow between the maximum and the minimum?

Mr. WHITTIER. The maximum is about 18,000 cubic feet a second.

Mr. POWELL. And the minimum?

Mr. WHITTIER. I can not give you that, but it can be found in the records of the United States Government Geological Survey. Mr. Hosford has told me they have been as low as 1,000 horsepower at Woodland, and that would be approximately 250 cubic feet a second.

Mr. POWELL. There is a statement at page 112 of the Second Annual Report of the Maine State Water Storage Commission giving the stream flow near Woodland, on the St. Croix River, and showing by measurements taken, dated December 4, 1902—do you know the horsepower development at Woodland?

Mr. WHITTIER. I have not the exact figures in my head.

Mr. MIGNAULT. Are there any records of the total flow of the river at Grand Falls previous to the construction of the dam?

Mr. WHITTIER. The records referred to by Mr. Powell were taken as far back as 1902.

Mr. POWELL. It would be substantially the same now. The diversion contemplated or actually made in connection with these works is entirely through American territory?

Mr. WHITTIER. Yes, sir.

Mr. POWELL. How long is that canal through which the water is diverted?

Mr. WHITTIER. I believe it is about 2,000 feet.

Mr. POWELL. From mouth to outlet?

Mr. WHITTIER. Yes, sir; the part that was excavated. There was a natural gully which assisted somewhat in making the canal and saved excavation.

Mr. MACINNES. You stated that the minimum horsepower would be 4,000. Would that be at a low flow? What will this development at Grand Falls give you? It is giving you now 8,000 horsepower?

Mr. WHITTIER. When there is sufficient water in the river.

Mr. MACINNES. Quite so; and when the work is complete it will give you 12,000 horsepower if there is sufficient water?

Mr. WHITTIER. Yes.

Mr. MACINNES. You have storage works there?

Mr. WHITTIER. Yes.

Mr. MACINNES. During how many months of the year will you get 12,000 horsepower, assuming the three turbines to be in? Or, to put it the other way, during how many months will you not get the full amount?

Mr. WHITTIER. I can not answer that question. I should say, roughly, for three or four months.

Mr. MACINNES. During three or four months you will not get the full amount?

Mr. WHITTIER. Yes; and maybe it will be six months.

Mr. MACINNES. And during the months you do not get the full amount, what proportion will you get? Put it your own way; how much will you get out of this development during the course of the year, dividing it into month or seasons, or any other way you choose?

Mr. WHITTIER. I can not answer that question definitely.

Mr. MACINNES. How nearly can you answer it?

Mr. WHITTIER. I can answer it in this way: I do not expect the flow will ever go less than 1,000 horsepower.

Mr. MACINNES. That is the flow without storage?

Mr. WHITTIER. With the storage as it is. I should be surprised if it ever went below 1,000 horsepower.

Mr. GARDNER. What would it be without the storage?

Mr. WHITTIER. It might be almost nothing whatever; it might almost dry out.

Mr. POWELL. If the minimum horsepower developed below Woodland is 1,000, the horsepower that could be developed would be considerably beyond that, because your head is double.

Mr. WHITTIER. I think you are mistaken about that; the head is nearly the same in both places; there is only a few feet of difference between the two heads.

Mr. POWELL. I thought that one was about half of the other.

Mr. WHITTIER. The head at Woodland is about 43 feet and the other is about 48 feet; it is practically the same.

Mr. POWELL. One thing I would like to know from you is, Is there a fishway at the lower dam at Woodland?

Mr. WHITTIER. Yes, sir.

Mr. POWELL. Do you know whether that is of any practical benefit or not? Do you know whether fish can get up it or not?

Mr. WHITTIER. I have been told that fish go up that fishway; I have not seen them go up.

Mr. POWELL. What kind of fishway is it; is it a ladder?

Mr. WHITTIER. It is a ladder.

Mr. POWELL. Is that the kind of fishway you contemplate putting in above at Grand Falls?

Mr. WHITTIER. I presume so, if it is satisfactory to the fishery commission.

Mr. POWELL. Is the fishway below where this ladder is in the dam itself or is the decline more gradual; does it run out into the river below quite a distance?

Mr. WHITTIER. It runs out quite a distance below; the grade is nearly parallel with the log sluice.

Mr. POWELL. Is that the general plan you contemplate for the dam above?

Mr. WHITTIER. Yes.

Mr. POWELL. And really fish have been known to go up there?

Mr. WHITTIER. Yes; so I have been informed; I have never seen them myself.

Mr. POWELL. Yours is a sulphite mill?

Mr. WHITTIER. Yes.

Mr. POWELL. Do the processes which are used in the manufacture of sulphite stop the fish from being in the vicinity of the mill?

Mr. WHITTIER. I do not think so.

Mr. POWELL. Do you see fish below at the tail of the mill?

Mr. WHITTIER. I do not think they would go right up where the acids are coming out, but a little below, when it is diluted with the other waters; I do not think it would bother them.

Mr. GLENN. We saw a fellow fishing there yesterday.

Mr. TAWNEY. Did you see him catch anything?

Mr. GLENN. No.

Mr. MACINNES. When did you commence to use the power from Grand Falls?

Mr. WHITTIER. I think it was in November, 1914.

Mr. MACINNES. Was that with one turbine or with two?

Mr. WHITTIER. With one.

Mr. MACINNES. When was the second turbine used?

Mr. WHITTIER. Very shortly afterwards; just as quickly as they could set up the second machine. It was a matter of a few weeks.

Mr. MACINNES. Since these turbines have been installed have you been using all the power or have you been using only a part of it?

Mr. WHITTIER. Approximately all, I believe. I am not competent to answer that question, because I am not connected with the manufacturing.

Mr. MACINNES. Have you records showing how much power you have obtained since the installation?

Mr. WHITTIER. I believe there are records showing that. There is a kilowatt-hour meter, which makes a graphic record; that would show that.

Mr. MACINNES. Would that be developed at Grand Falls or at Woodland?

Mr. WHITTIER. I believe it is at each end.

Mr. MACINNES. What is the line loss in transmission from Grand Falls to Woodland?

Mr. WHITTIER. I think it is estimated at 10 per cent.

Mr. MACINNES. Then you thought that when you had 12,000 horsepower there would be only 9,000 delivered at Woodland. A loss of 10 per cent would give you more than 9,000 horsepower at Woodland.

Mr. WHITTIER. There is loss in the generator, in the transformers, in the transmission line itself, in the transformers at the other end of the line, and then again at the motors, and I included all these losses in reckoning the total loss at 25 per cent. It may be only 20 per cent or it may only be 18 per cent.

Mr. MACINNES. What has been shown by the practice so far in this particular plant? What is the total loss in transmission from one point to the other?

Mr. WHITTIER. It has been a little less than what I have given you; but the line was built for the three units, and only two of them are used, so the line is larger than would naturally be built for the present amount of current, and that gives us less loss.

Mr. MACINNES. You have a record of the amount of power you have been able to get since the installation. You said you could not tell us what power you expected to get when all three turbines were installed, during the different months of the year, but have you not some report from engineers, when this plant was established, showing how much power you might expect from this plant altogether, with the storage—in other words, during how many months you would get your full quantity and how many months you would not?

Mr. WHITTIER. Yes; we have the records of the United States Geological Survey.

Mr. MACINNES. Applying these records to the water flow of this proposition, how much horsepower will you get out of this plant when fully developed?

Mr. WHITTIER. I judge we will get the full capacity of the plant for six months in the year.

Mr. MACINNES. And during the other six months how much will you get?

Mr. WHITTIER. It will vary from full capacity to 1,000 horsepower.

Mr. MACINNES. Have you not some report which would enable you to go closer than that?

Mr. WHITTIER. I have not any report.

Mr. MACINNES. Has the company not got some report which will show us how much power will be available from this plant?

Mr. WHITTIER. I have never seen such a report.

Mr. POWELL. As I understand it, you have only turned the power on fully within the year.

Mr. WHITTIER. That is so.

Mr. POWELL. And you have no data as yet?

Mr. WHITTIER. No.

Mr. MAGRATH. This company undertook to spend \$1,000,000 for development purposes, and would it do that without having some fair conception as to what power it expected to get?

Mr. WHITTIER. The same water will be used at Woodland as will be used at Grand Falls; it passes from Grand Falls to Woodland. They know how much they have been getting from Woodland, and they know they will get a little more at Grand Falls, because the head is a little greater.

Mr. MAGRATH. You gave 250 second-feet at Woodland. Was that before or after the dam had been constructed at Grand Falls?

Mr. WHITTIER. That was before.

Mr. MAGRATH. So that you would not expect as small a minimum as that at Woodland since the dam has been constructed?

Mr. WHITTIER. I should hardly think so.

Mr. POWELL. And you get the benefit of the storage?

Mr. WHITTIER. That should help it.

Mr. MAGRATH. Can you obtain during recess some information to give to the commission showing what is the anticipated power development from this plant on which you have expended over \$1,000,000?

Mr. WHITTIER. I will do the best I can.

Mr. MAGRATH. Can you also obtain for us information as to the amount of the power development at Woodland; that is, at the present time, since the construction of the storage at Grand Falls.

Mr. BAXTER. I understand that the canal starts at the east branch of the St. Croix River?

Mr. WHITTIER. I believe it is the west branch; it is the branch that comes down from Princetown.

Mr. BAXTER. That is the branch that is entirely on the Maine side?

Mr. WHITTIER. Yes.

Mr. BAXTER. And then you take it 2,000 feet from the St. Croix River and still on the American side?

Mr. WHITTIER. Yes.

Mr. BAXTER. What is the object of making that diversion?

Mr. WHITTIER. The falls in the natural bed of the stream are gradual; they are rapids, and they extend over a considerable length of the river.

Mr. BAXTER. That is what you call the Grand Falls?

Mr. WHITTIER. Yes; and in order to change this fall of water into power it is necessary to drop it down suddenly.

Mr. BAXTER. Then I understand you that by merely damming the river at any point in the Grand Falls you could not obtain the same result?

Mr. WHITTIER. And building a power house at the dam?

Mr. BAXTER. And building it wherever it would be proper to build it.

Mr. WHITTIER. Perhaps I can answer your question best by saying that this seemed to be the most economical way to develop the full power.

Mr. BAXTER. Could you put it in this way: That you might have developed the power on the river itself, but not quite so economically. Would that be correct?

Mr. WHITTIER. Yes; that would be correct. We could have used long penstocks to take the water down to this lower point, where the tail-water is sufficiently low to get all of the head.

Mr. BAXTER. And now by the dam that you have at Grand Falls you back the water up and back it into this west branch of the St. Croix.

Mr. WHITTIER. Yes; raising the level somewhat.

Mr. MAGRATH. How far up the boundary stream is the water backed through the construction of this dam?

Mr. WHITTIER. It is backed up to Princetown.

Mr. MAGRATH. I mean along the boundary?

Mr. WHITTIER. I do not understand the question.

Mr. MAGRATH. How far does it back toward Vanceboro on the east bank?

Mr. WHITTIER. I can not tell.

Mr. HOSFORD. It is shown on the map.

Mr. MAGRATH. How far is it?

Mr. HOSFORD. It is a little over 1 mile on the international river.

Mr. POWELL. I do not quite understand you, Mr. Whittier. Mr. MacInnes asked you if under the natural conditions, so far as the situation is concerned at Grand Falls—the minimum flow at the lower dam was 250 second-feet—what would be the flow under the present conditions, and you said there would be an addition, so far as this storage is concerned?

Mr. WHITTIER. Yes.

Mr. POWELL. Did you not forget for the moment that there would be an addition to the transmitted power of 260. You would have the 260 there and 260 transmitted by the electric cable, and you would have the benefit of storage. If you had 1,000 horsepower developed below, under conditions as they were before the present dam was built, you then would have under present conditions 2,000 horsepower transmitted energy from the development itself.

Mr. WHITTIER. That is true; that includes both developments.

Mr. POWELL. In addition to that you would have whatever advantage would accrue from the storage in equalizing the flow.

Mr. WHITTIER. Yes; that storage is something that can be used. It is like money, you can spend it now or you can spend a little of it every day.

Mr. WYVELL. From the engineering standpoint you see no reason why the fish laws can not be complied with and a fishway put in the power dam now as well as at any other time?

Mr. WHITTIER. There is no difficulty, unless they would have to build it over again later on.

Mr. WYVELL. You mean they would have to get the approval of somebody?

Mr. WHITTIER. If it is built now and the authorities come later on and say it must be built entirely differently, the money expended would be lost.

Mr. WYVELL. Is not that a matter to be determined by the fishery authorities of each country? Can not they direct you as to the building of these fishways?

Mr. WHITTIER. I see no reason why they can not.

Mr. WYVELL. I want to have it made plain that these fishways will be built right away.

Mr. WHITTIER. I understand that as soon as the fishery authorities decide on the kind of fishway they want it will be built right away.

ISAAC B. HOSFORD, president of the St. Croix Paper Co., recalled:

Mr. MACINNES. It is stated in your application, Mr. Hosford, that the power to be generated at the works, when completed, will vary from a minimum of 4,000 horsepower to a maximum of 12,000 horsepower. Can you tell us what is the quantity of horsepower that it is actually anticipated will be obtained when the works are completed; that is, when you have three turbines installed, taking it either as for the whole year or from month to month?

Mr. HOSFORD. The data and the experience in Woodland of rainfall for a number of years was taken as the data for the head and fall development at Grand Falls, and with our reservoir capacity we felt justified in going ahead with this expenditure on the basis of a production of pulp and paper, of about 150 tons per day, and putting it into the simplest language I could say that through the year we would get with the two powers combined 12,000 horsepower. That might mean that some days we would have 20,000 horsepower, 13,000 horsepower at Woodland, and 12,000 at the upper dam, varying back and forth. At all events that out of the two powers going together we would have 12,000 per day per year.

Mr. MAGRATH. Is that additional?

Mr. HOSFORD. No, sir; that would be 6,000 at each place, because the head and fall is almost identical.

Mr. POWELL. The water power varies and it is transmitted electrically.

Mr. HOSFORD. Exactly. The two together would mean 12,000 horsepower average for the year, and that put into tons of pulp and paper is the basis upon which we figured.

Mr. MACINNES. That is combining the two power plants.

Mr. HOSFORD. Absolutely.

Mr. MACINNES. But dealing with the Grand Falls power plant separately, you have a statement that there is a minimum of 1,000 and a maximum of 12,000, and I ask you, during how many months do you understand you will be able to get the maximum of 12,000 horsepower?

Mr. HOSFORD. From any experience that we have had it would be less than three months.

Mr. MACINNES. And during the other nine months how much would you get of that 12,000 horsepower?

Mr. HOSFORD. That is a question parallel with how much money we would take out of a bank. We could open our waste gates in these different reservoirs, and whether we preferred to use 4,000 this month and two or three thousand next month, would be a question.

Mr. MACINNES. But assuming you did want to use as much as you could, how much would you obtain? In other words, when you were making an investment of over \$1,000,000, what did your engineers report about, as to how much you could obtain in horsepower for that expenditure?

Mr. HOSFORD. Six thousand horsepower average through the year at Grand Falls.

Mr. MACINNES. Six thousand is the average?

Mr. HOSFORD. Yes; and we developed wheels of only 8,000 to be put in later if occasion warranted it. If the plant warrants it, we can have 12,000; that is, on further investigation of this valley and its rainfalls.

Mr. MACINNES. And with this 8,000 you have in storage there, you expect to get 6,000 horsepower?

Mr. HOSFORD. No; if we had the 12,000 installed, there would be times we would use the 12,000 which would make the average greater for the year.

Mr. MACINNES. And with the two you have installed, what has been your experience up to date; I assume you would only get 50 per cent, is that right?

Mr. HOSFORD. Up to date would be very misleading, because we have had a very bad spring; part of the time we could not get even one of these units.

Mr. MACINNES. You said that with 12,000 you would only get 6,000 average. With 8,000 how much would you get?

Mr. HOSFORD. It could not be two-thirds because we would not ever have a chance with a high average.

Mr. MACINNES. It would be how much; 4,000 or 5,000?

Mr. HOSFORD. That is very hard to tell.

Mr. MACINNES. You said that with a minimum of 4,000 and a maximum of 12,000, you expect to get 6,000 throughout the year; how is that divided as to months?

Mr. HOSFORD. When the spring-water freshets come we would of course run as full as we could and store our raw material, but the moment we could close our reservoir we should close it, and naturally on this river we would then get a shorter period of time for freshet water because we would conserve it. After that, we would peddle it out each day and fit our needs. If rain came, we would still keep our storage water; if rain did not come we would open one gate or another, remembering all the time that the farthest reservoir is only 30 miles and the nearest only 11 miles, and we could immediately almost feel the effect. So, we could handle it as we would a spigot. It makes it hard to say in what particular month we would have a big run or a little one. If we had a good rain month, we would keep all our storage water. It is hard to answer your question except as to the average of the year.

Mr. MACINNES. What would be the average flow, in second-feet, on this assumption?

Mr. HOSFORD. We could not give you that.

Mr. MACINNES. Still you have information as to your reservoirs?

Mr. HOSFORD. Yes; this data would come from the engineer and not from me.

Mr. MACINNES. You have information as to your reservoir capacity?

Mr. HOSFORD. Not in gallons.

Mr. MACINNES. But in second-feet?

Mr. HOSFORD. We have not it in second-feet because we never use that altogether.

Mr. MACINNES. What would be the average flow in second-feet to produce this 6,000 horsepower?

Mr. HOSFORD. The engineer would have to answer that. It is 43 feet head in one place and 48 feet head in the other.

Mr. MACINNES. This average you have given us, is it on the assumption of an open winter or a severe winter, or what kind of winter?

Mr. HOSFORD. It is influenced by drought.

Mr. MACINNES. How do winter conditions affect the operation of your plant?

Mr. HOSFORD. Very badly; and this last winter in particular, as there was a very light snowfall.

Mr. MACINNES. That is as to flow, but does the frost bother you at all?

Mr. HOSFORD. Oh, not at all.

Mr. MACINNES. It is a question of rainfall and snowfall.

Mr. HOSFORD. That is all.

Mr. MACINNES. And this 6,000 estimate which you have given us is for an average year?

Mr. HOSFORD. Yes; a little better. We have considered that in a year when there was more drought than the average. We have insured against that.

Mr. MACINNES. That would be taken on a fairly dry year?

Mr. HOSFORD. Yes. We have records of it being down to 837 horsepower under a 43 feet head. We could make only 1,600 horsepower with the two powers.

Mr. MACINNES. Did your engineer figure out an estimate of 6,000 horsepower?

Mr. HOSFORD. I figured it out in my private way on the wheels, but we had engineers to take data from day to day.

Mr. MACINNES. Is it applied to a particular year?

Mr. HOSFORD. It is applied to a long series of years up to the time we began the development at Grand Falls.

Mr. MACINNES. If that is so, it would apply to an average year?

Mr. HOSFORD. I said we had one very terrible year of drought, and we did not take that as a standard.

Mr. MACINNES. Can you explain to our engineers how you arrived at 6,000 horsepower as being the amount that you could expect to develop out of that proposition?

Mr. HOSFORD. I think I could explain it so that they would understand it.

Mr. MACINNES. Will you explain it with reference to the stream flows of the particular years or from the records of a number of years?

Mr. HOSFORD. It would be the record of a number of years. This data has been taken at the mill and sent to New York and figured in the head office of the company.

Mr. MACINNES. Then you would apply it to records of a number of years, and as you told us you would cut it down a little in order to guard against possible drought?

Mr. HOSFORD. That is it.

Mr. MACINNES. If you applied the same basis to your record without making any allowance for possible drought, what amount of horsepower would you get?

Mr. HOSFORD. That would be hard to answer.

Mr. MACINNES. You must have arrived at that first, because when you got the 6,000 horsepower you had already made allowance for the drought.

Mr. HOSFORD. I said a fair drought; I said we would not go to the expense otherwise. There is a point at which you could develop sentimentally to 100 per cent, but economically you could not afford to do that.

Mr. MACINNES. What is the figure in horsepower that you arrived at in applying your computation to the record of average years?

Mr. HOSFORD. I can not tell, but the point I finally arrived at was 6,000 horsepower.

Mr. MACINNES. And you say that in giving that as an average it is on the safe side?

Mr. HOSFORD. A little on the safe side.

Mr. MACINNES. But you can not say how much the actual figure produced by applying your computation to the record?

Mr. HOSFORD. I do not know that anybody could. This was figured on the basis of the record of 365 days in the year.

Mr. MACINNES. And it would be larger than 6,000 horsepower, but you can not tell us how much in the average year.

Mr. HOSFORD. I should think it would be a little over 6,000 horsepower, except in dry years.

Mr. MACINNES. But how much more than 6,000 horsepower you can not tell?

Mr. HOSFORD. No; the data on this river was practically nil until we came here.

Mr. MAGRATH. In the control you are exercising over these waters, do you consider that your interests are identical with those of the power interests below you?

Mr. HOSFORD. We have tried in every way possible to meet their wishes, and we have been met with courtesy in every way. This continuous flow, of course, must be of value to everybody. I will not say that we are public benefactors, but I will say that we are constantly in telephonic communication to remove any difficulty, and we try in every way to accommodate those interested.

Mr. KOONCE. In the operation of your works do you allow the natural flow of the river to pass every day?

Mr. HOSFORD. Except in freshet times.

Mr. KOONCE. For any extended period do you keep all the water?

Mr. HOSFORD. Except in high-water time, there is no day in the year but what we let more than the natural flow pass.

Mr. KOONCE. So that you do not obstruct the flow of the river in the upper portion in such way as to affect the navigable portion below?

Mr. HOSFORD. No, sir; except beneficially.

Mr. KOONCE. You supply more than the natural flow?

Mr. HOSFORD. Yes; a minute after the freshet goes by we supply more water.

Mr. KOONCE. On some streams there is trouble about power companies impounding water, Saturdays and Sundays, and thereby people below who are engaged in navigation do not get a sufficient depth of water.

Mr. HOSFORD. I have been on the Androscoggin water and I know what occurs.

Mr. KOONCE. And nothing of that kind occurs under your operation?

Mr. HOSFORD. No.

Mr. MACINNES. Did I understand you to say that you shut off completely on Sunday?

Mr. HOSFORD. No; there would be two hours or three hours. It costs us quite a bit to stop the generators, and so we do not stop all the generators unless we have to, and that sometimes makes a little low water below us, but the distance is only nine miles, and we try to start immediately and fill these gaps.

Mr. KOONCE. Do you know of any navigation, in the way of log driving, between the time you stop off on Sunday and the time you allow the natural flow to go?

Mr. HOSFORD. None at all. I think the people up here do not break the Sabbath as much as we do in other parts of the country. On the English side we have felt the effect of the Sunday law a little.

Mr. MACINNES. Can you tell us as to applications for approval, or of approval obtained from the Dominion Government, of the works either at Woodland or at Grand Falls; do you know about that?

Mr. HOSFORD. I could not tell you under oath; only from hearsay.

Mr. MACINNES. Your Canadian attorney would know that.

Mr. HOSFORD. That would be for Judge Cockburn to say. Unfortunately, the gentleman who has this part of the business in charge is not here, and I have had to take his place.

Mr. MACINNES. The work at Spragues Falls was done before Mr. Cockburn came into the matter?

Mr. HOSFORD. Yes.

Mr. MACINNES. Was application made to the Dominion Government for approval of these works?

Mr. HOSFORD. As I understand it, it was not thought to be necessary, it being under a Dominion charter.

Mr. POWELL. There was no application.

Mr. HOSFORD. There is a Dominion charter.

Mr. POWELL. The application was not made to the Dominion?

Mr. HOSFORD. Not to my knowledge.

Mr. POWELL. Was it made in the case of the cotton mill?

Mr. HOSFORD. No.

Mr. WYVELL. Are you willing to hasten the construction of proper fish guards, so far as it is in your power?

Mr. HOSFORD. We are willing to act immediately on the decision of the two fishery boards that are interested; the moment they state they want a fishway, and tell us the kind, it will be built.

Mr. MACINNES. Under these works at Grand Falls you are taking all the waters of the river there?

Mr. HOSFORD. I do not understand how we could take all the waters of the river.

Mr. MACINNES. You take it through the canal?

Mr. HOSFORD. Except in freshets. We can take the average flow, as we understand it. We built our canal for that purpose.

Mr. MACINNES. In view of this diversion, where will Canadian interests be able to obtain, not necessarily now but at some future date, equal and similar rights in the waters of the river?

Mr. HOSFORD. At what point?

Mr. MACINNES. In view of this diversion.

Mr. HOSFORD. Anywhere above where there is a rapids and anywhere below where there is a rapids.

Mr. MACINNES. Assuming that approval should be given to these works, can you say where other Canadian interests could obtain equal and similar rights in the use of these waters?

Mr. POWELL. Compensatory rights.

Mr. HOSFORD. I do not quite understand the question. Do you mean at that point, or the waters of the river generally?

Mr. MIGNAULT. Answer the question generally, as to the St. Croix River.

Mr. HOSFORD. I do not understand whether Mr. MacInnes means whether the Canadian interests could take out of the end of that dam, or whether he means at some geographical point on the river.

Mr. MACINNES. The Canadian interests could obtain equal and similar rights in one-half of the water at that point. Canadian interests could take half of the water at that spot and half could be taken by you, but that is not your proposition; your proposition is to develop all the water at that particular point.

Mr. HOSFORD. That is what we have done.

Mr. MACINNES. Assuming that your project is approved, how will Canadian interests be compensated so as to get their half interest, either in water or in water power? How do you explain that can be done?

Mr. HOSFORD. I still do not know whether you mean on the head and fall or on the river.

Mr. MACINNES. It can not be done at that particular place, because you have taken all the water there.

Mr. HOSFORD. The international river is at Vanceboro and there is a power there. That question has come by some one trying to buy that power within the last three weeks, an outsider. Then below the junction of these two rivers at Grand Falls, with the advantage of storage on both sides, there are two powers that he owns.

Mr. MACINNES. Those are already in existence?

Mr. HOSFORD. Only one of them developed. At Baring, where originally there were a number of sawmills, there is only one small mill there now. Farther down, at Calais, there is a combination of three or four powers, some of more water going through the bottom of the dam than is going through any wheels, powers capable of large development, but only used to-day for small works, but on which, if a dam were built, there could be a large plant. I can think readily of four or five on the river.

Mr. MACINNES. Are you going to give the commission further details as to that or will one of your engineers give that information?

Mr. HOSFORD. I do not think it would be in our province to do so, because we are not financially interested and it is the property of our neighbors and we know nothing about it except as to the flow of the river.

Mr. MACINNES. I should think it would be part of your proof to put in that. It is your place to show that if you ask that you should be allowed to take all the water at this spot, without allowing Canada to have its half share under the treaty, you must show to the satisfaction of the commission that Canada can obtain equal and similar rights elsewhere. I should assume that you would attempt to give information to the commission on that point under these conditions.

Mr. HOSFORD. I shall be pleased to give any information that I am capable of giving under oath.

Mr. MACINNES. Have you figured out in any way or can you give further details as to the particular point you have mentioned where Canada could obtain additional power?

Mr. HOSFORD. There is a very large undeveloped power directly below Woodland paper mill; it extends from there down to Baring.

Mr. MIGNAULT. What is the fall there?

Mr. HOSFORD. It is hard for me to tell you about my neighbor's property, but I think it is in the neighborhood of 20 feet.

Mr. CURRAN. It is more than 20 feet.

Mr. POWELL. Does it correspond with the average high water down here or what does it correspond with?

Mr. HOSFORD. You mean the lower dam?

Mr. POWELL. Yes; does the engineer know? Apparently within 20 or 30 miles there is a fall of 201 feet.

Mr. HOSFORD. Yes.

Mr. POWELL. And 90 of these feet are used up by these two dams.

Mr. HOSFORD. Yes.

Mr. POWELL. Then that leaves 110 feet, but it may be that it is so situated that it can not be utilized.

Mr. HOSFORD. I can state that with one exception there are dams on all these powers I have mentioned.

Mr. POWELL. And good banks to build up?

Mr. HOSFORD. Excellent; and people have studied that and promoters have been here from all directions.

Mr. MIGNAULT. Can you give us precise information as to the power possibilities on the St. Croix River, outside of what is controlled by your company?

Mr. HOSFORD. I could not give it in horsepower, but the datum worked out by Mr. Powell gives it at something over 100 feet.

Mr. GARDNER. Do you know what it would be at the headwaters at Vanceboro?

Mr. HOSFORD. I do not know, but I think it would be if there were installed proper storage.

Mr. POWELL. Nothing less than 20 feet would pay very well.

Mr. HOSFORD. That would be according to the width of the river.

Mr. POWELL. But taking the width of the river as it is.

Mr. MIGNAULT. Do you say that nothing less than 20 feet would pay?

Mr. HOSFORD. I should not want to invest money in a dam at less than 20 feet.

Mr. MIGNAULT. What minimum amount of water would be required to make it a paying proposition?

Mr. HOSFORD. That would depend entirely on the price you receive for your power and what you could use it for. I think you will find in that book there all these heads and falls described at the places I have mentioned.

Mr. GLENN. You say you can get 6,000 horsepower?

Mr. HOSFORD. We hope to get it.

Mr. GLENN. Under this treaty Canada is entitled to 3,000 horsepower, and in these places you speak of that can be developed.

Mr. POWELL. So that Canada could obtain 3,000 horsepower from these places?

Mr. HOSFORD. A good deal more than that.

Mr. POWELL. In order to give them equality.

Mr. HOSFORD. I think they could get it directly below Woodland. I think a Canadian company has looked into it with the view of developing it for that very purpose.

Mr. KOONCE. Mr. MacInnes has raised the question of an equal division between Canada and the United States, which, of course, we

do not object to; but it occurs to me that Canada is precluded by the fact that Canada incorporated this company and disposed of its share of the water at this particular point. Is not that so?

Mr. MIGNAULT. I think in order to prove that you would have to offer us a little more proof than this act of incorporation.

Mr. KOONCE. You say you have not given to this company the right to use your share of the water at this point?

Mr. MIGNAULT. Oh, no.

Mr. GLENN. What does the charter say?

Mr. MACINNES. The charter gives them the right to get it, but that is a very different thing from giving it to them.

Mr. KOONCE. I would like to hear some explanation of that proposition. This is a meeting of the commission, as I understand it, simply to make recommendations as to whether these completed structures should be approved or not by the respective Governments. Of course, if they have appropriated water which belongs to Canada, that is a matter for the Dominion to look to.

Mr. MACINNES. That is the point.

Mr. KOONCE. I was under the impression that by the incorporation of these two companies, one on the American side and one on the Canadian side, there was acquired from the Dominion Government the right to use its one-half of the water of the river.

Mr. TAWNEY. You see, Judge Koonce, that is one reason why the commission should have before it the charters under which these companies were organized, because we can not say what their rights are until we look at the charters. It is for those who represent these companies to present these charters to the commission for our consideration; it is not for the Government nor for the commission to prepare the evidence.

Mr. POWELL. Mr. MacInnes, as I understand your point, it is this: That the statute of Canada has simply created, so to speak, a potentiality to receive, but not the right to take?

Mr. MACINNES. Quite so.

Mr. POWELL. You say it is a right not belonging to the Province of New Brunswick? It is a right belonging to the Province of New Brunswick rather than to the Dominion.

Mr. BAXTER. There is a nice constitutional point there as between the Dominion and the Province.

Mr. GLENN. If under the law of the Dominion you granted this charter, and this charter gives these people the right to use this water for such purposes as they see fit, and they go on and use the water, could you come in afterwards as a Dominion and say they did not have the right to do so?

Mr. MACINNES. As I understand our law——

Mr. GLENN. I do not know your law—I am ignorant of it.

Mr. MACINNES. All the charter does is to clothe a certain number of individuals to do things which an individual himself might do. It creates a corporate entity, but it does not give them any property rights. It clothes them with the power to receive, if they are able to obtain, rights from the parties who own these rights. In the case of property being owned by the Dominion Government, the granting of a charter by the Dominion Government to a company would not pass the title in the Dominion Government in that property to that com-

pany. A separate transaction to do that would be necessary. The incorporation of a company, in other words, is merely giving to a body the right to receive from persons, or corporations, or governments who have the right to give and who are willing to give.

Mr. GLENN. Our charters would go further than that. In our State I know where a charter is granted to certain people to acquire certain rights, then certain privileges are given.

Mr. MACINNES. Oh, yes; if certain privileges are given, then it is another thing.

Mr. GLENN. I want to see what the charter says.

Mr. MACINNES. If there was a case in which the Dominion Government owned a property and also gave an act of incorporation to a company, there might be embodied in the same statute the two transactions, and that is probably the instance you have in mind in your own State.

Mr. TAWNEY. Is not this a matter of argument?

Mr. COCKBURN. The charter to the Spragues Falls Manufacturing Co. is chapter 103 of the Statutes of Canada, 2 Edward VII, 1902. Section 11 of that statute says:

That the company may locate, erect, or maintain at or near Sprague Falls, dams, with the right of storage, for the purpose of holding and receiving the water, etc.

That was the section under which the dam at Woodland or Spragues Falls was constructed. Section 11 says that the company may locate, erect, or maintain in the St. Croix River, above Spragues Falls, or at or near Grand Falls, auxiliary dams which shall be erected and maintained with the same requirements, and under like conditions as required by 2 Edward VII, respecting the dams at Spragues Falls. It says that the company may use the power created at said dams directly, or may transmit the power, etc., and for such purposes may erect poles and do all other things necessary on paying all damages caused by reason thereof. It would seem to me that under that section the Spragues Falls Manufacturing Co., having acted under this charter, it matters not whether they sell out to an American company or to a Canadian company, they are acting within the right of their charter, and therefore that the power that is created there belongs to them.

Mr. WYVELL. Why not put in both charters so that they may be in the record?

Mr. CURRAN. I do not know how far the commission are interested in water powers elsewhere, but if Canada wants water powers, I may say that two years ago I was consulted as to another paper mill on the river, and I made inquiries and had surveys made, and I was told by the engineer, as a result of these surveys, that with a dam a little above the present Baring Dam, and another down at the present Milltown Dam, they could give us equal power to what the paper company had above, and that all can be bought. Then there was still left below one of the powers which I own, and although of not much account it is still, perhaps, 1,000 horsepower, and there was also left the entire Canadian Cotton Mill Dam, which they occupy exclusively, nobody else uses it there, with 21 feet head or more, and also what is known as the milldam, owned by the Todd family in St. Stephen, which is only occupied for a small lighting plant, and which used to

run a number of sawmills. So that there is ample power to be had up and down the river at a reasonable price, and I shall be only too happy to gather it all in for any of my Canadian friends who want to do business, at a low price, much lower than we had to pay for the power above.

Mr. GLENN. I should like that Mr. MacInnes should read this charter.

Mr. MACINNES. I have read it several times.

Mr. GLENN. It seems to me to give them very full powers.

Mr. BAXTER. The property is the property of the Province of New Brunswick and they have no right to deal with it.

Mr. MACINNES. The Federal Government of the United States could not give away the property of the State of North Carolina.

The commission took recess for luncheon.

The commission resumed after the luncheon recess.

Mr. HOSFORD was recalled.

Mr. GARDNER. I do not quite understand yet how much you think you have increased the average water power, that is the available power here, by reason of your storage dam. Of course, if there was no storage there there would be nothing to hinder the flood water from going out entirely?

Mr. HOSFORD. My answer to this question will be: On what basis do I give my figures? I can not give them except from judgment and experience.

Mr. GARDNER. Give it from your judgment.

Mr. HOSFORD. After we had a certain portion of our reservoirs completed there came a dry year, and in that dry year we not only exhausted these original reservoirs which we built, but the power reached at one time on what we would call an average 6,000-horse-power dam, it reached as low as 800, and it was a question whether we could then turn the ordinary mixing machines without considering anything else. That has been absolutely obviated, of course, by a series of reservoirs, and we are running certainly 33 per cent increased water power, but we have made as low as 17,000 tons of pulp in one year. On January 1 of this year it was low water, low in February also, and it began to come up in March, but with this new reservoir system we have made over 17,000 tons already this year in the first five months up to the 1st of June. We have made in the first five months of this year as much as we made in 12 months before. Part of that five months was very low water, and I feel we have increased the average power at least 33 per cent.

Mr. POWELL. That would be double through the electric.

Mr. HOSFORD. It would be double to the St. Croix Paper Co., but it would not be double elsewhere. We would use it twice. May I correct you on one question which was mentioned this morning?

Mr. POWELL. What was that?

Mr. HOSFORD. In speaking of the two dams, and not only double the water but getting the benefit of the reservoirs, I think you did not quite understand it. Of course, if the new dam is the same height as the old dam, and we used the water twice, we get double at the lower place and we get it single up at the other place, but the

reservoir does not give anything, because if we exhausted that reservoir we get through with the upper place altogether. The reservoir would not help us any, because in using that reservoir you would exhaust it there, which would leave the plant at that reservoir powerless.

Mr. GARDNER. How would that apply to the mills below in the using of water?

Mr. HOSFORD. It would be of immense benefit. If a man used 100 horsepower he might have 100 horsepower all the year around, even with a dry season, but with the reservoirs as they are made, and he used a large quantity of power, he would have no cause of complaint.

Mr. GARDNER. You have furnished them with a more uniform flow.

Mr. HOSFORD. I do not think there is a doubt about that.

Mr. MAGRATH. Referring to your observation a few moments ago, I presume you can have submitted to us a statement of your hydraulic data that you have been collecting from time to time on the river.

Mr. HOSFORD. It could be done. It was, I think, given in some other evidence before another tribunal.

Mr. MAGRATH. You can have your engineers collect that material for us—you are taking certain data from day to day as to the flowage of water?

Mr. HOSFORD. Yes; we know the amount of wheels we run every day and we know the head and fall on the dam.

Mr. MAGRATH. I think it would be desirable to put on record that information.

Mr. HOSFORD. It varies, you know.

Mr. MAGRATH. Show it as it varies.

Mr. HOSFORD. It varies; in a period of five years there will not be any two months alike.

Mr. MAGRATH. It would give us an opportunity to see what the conditions are.

Mr. HOSFORD. We peddle it; we save it all in a wet month and peddle it out.

Mr. GLENN. Looking at this book which has been put in here, I notice that the width of the dam is given as 1,690 feet, and, according to the engineer, his statement was that it was 1,100 feet; which is correct?

Mr. WHITTIER. One thousand one hundred is correct; that is what it shows on the plan as filed.

Mr. GLENN. After having looked at the plan I find that 1,100 is correct.

Mr. POWELL. Do you store your ground pulp as well?

Mr. HOSFORD. That entails a loss of at least \$2 per ton, and that is why we immediately close these reservoirs at high water and peddle it out. I think I can answer your question with regard to what we peddle out of water every day; I think I could give what we use on the average, holding other water back and bringing this down under the system of reservoirs.

Mr. MAGRATH. Do you not keep a record of the water that passes down?

Mr. HOSFORD. Certainly; it is 365 times that every year.

Mr. CURRAN. I now produce the charter of the St. Croix Water Power Co., being chapter 203 of the private acts of the State of Maine, 1899.

Mr. COCKBURN. I also produce the charter of the Spragues Falls Manufacturing Co., being an act to incorporate the Spragues Falls Manufacturing Co. (Ltd.), 2 Edward VII, chapter 103, Statutes of Canada, 1902.

ARTHUR L. HOBSON, official of the St. Croix Paper Co., sworn:

I produce a statement showing the cost of the building of the Grand Falls Dam, the canal, the power house and equipment, and also the buildings at Woodland, which it was necessary to construct in order to use the power from the Grand Falls Dam, at Woodland. The statement is as follows:

Labor and material used at Grand Falls.....	\$809,729.96
Machinery and equipment at Grand Falls.....	118,730.81
Changing grade of railroad.....	34,135.19
New buildings at Woodland.....	32,070.69
Equipment of same.....	41,700.98
Piers and booms.....	214.30
Towboat.....	4,000.00
Flowage on the New Brunswick side.....	10,356.25
Flowage on the American side.....	98,096.20
Total.....	1,148,341.38

To the best of my knowledge and belief that statement is correct.

Mr. MAGRATH. The first two items cover the cost of the dam, canal, and power house?

Mr. HOBSON. Yes.

Mr. MAGRATH. Then, the \$10,356 for flowage on the New Brunswick side covers an acreage of 181.1 acres?

Mr. HOBSON. Yes.

Mr. MAGRATH. And the \$98,096 covers how many acres on the American side?

Mr. HOBSON. Seven thousand two hundred and ninety-one, less 181 acres.

MELVILLE N. COCKBURN, solicitor for the Spragues Falls Manufacturing Co. (Ltd.).

Questioned by Mr. MACINNES:

Mr. MACINNES. I understand that the Spragues Falls Manufacturing Co. in November, 1914, but not prior to that, apparently made an application to the Dominion Government for the approval of its works at Grand Falls, but that application was not granted; is that correct?

Mr. COCKBURN. The application was made. When the application was made to this commission for approval of what had been done, our attention was called by the department of public works or the secretary of the commission to the fact that the approval of the department of public works, under the navigable waters protection act, should first have been obtained before this matter could come before the International Joint Commission. Then an application was made to the department of public works based upon that act. Afterwards

the minister of public works, having considered the matter from the standpoint that the work had been practically completed before the application was made, an order in council was passed to refer it to the International Joint Commission.

Mr. MACINNES. Apart from the matter being referred to this commission, approval was not granted under the navigable waters protection act because the works had already been constructed?

Mr. COCKBURN. Yes.

Mr. MACINNES. So that it will be apparently necessary for your company to obtain a special act for that purpose, because the works have been constructed without approval prior to the act, and the act relates to works which are to be constructed and not to works which have been constructed; is that the point?

Mr. COCKBURN. That was the interpretation put upon the act by the department, and that is the reason why they refused to take action, but the order in council referred it to this commission.

Mr. MACINNES. And that order in council, I presume, forms part of the record in this case and is the order in council dated the 29th January, 1915?

Mr. MIGNAULT. That is not in.

Mr. MACINNES. It ought to form part of the case of the applicants.

Mr. TAWNEY. Do I understand that the evidence on the part of the applicants is closed?

Mr. COCKBURN. Yes.

Mr. TAWNEY. There is an allegation in the plaintiffs' case that the plans of the said dam were submitted to and approved by the water-storage commission of the State of Maine. Has that approval been put in evidence?

Mr. CURRAN. I have not been able to find the written approval which was sent me, but it was approved. I may state, however, that we are buying from the State of Maine a quantity of Indian land which they have in trust, in order to flow it, and as a condition of that deed they put in that we must keep these measurements of the dam and have it done according to the storage commission of the State, so that if we do not do it our deed would be void.

Mr. TAWNEY. Were there any conditions stipulated in the order of approval by the water-storage commission of Maine?

Mr. CURRAN. Not at all; they simply approved what we did.

Mr. TAWNEY. In view of subsequent proceedings that will have to be taken specially before Congress, do you not think it wise to have this record complete, so that it will go before Congress in a complete form?

Mr. CURRAN. I will get that written approval and forward it to your secretary if that will answer your purpose.

Mr. TAWNEY. That would answer the purpose if you make it part of the record.

Mr. CURRAN. I may have to send to Augusta for it, but I will not be able to have it while the commission is sitting here.

Mr. POWELL. It is understood, then, that leave is granted to the applicants to submit a copy of the approval of the water-storage commission of the State of Maine of the dam in question.

Mr. GARDNER. Are you ready to proceed now, Mr. MacInnes?

Mr. MACINNES. Yes; I will call Mr. James White.

Mr. CURRAN. I want to put in an extract from a deed to be sent to the secretary at the same time as I submit the certificate of approval, and extracts from the other deeds.

Mr. WYVELL. Do you think it would be well, in presenting these deeds, to just give the grantor and grantee in every deed you have got?

Mr. BAXTER. Yes; that would be all right; and a brief copy of the description of each.

Mr. TAWNEY. There should also go in, as part of the petitioners' case, a copy of the original grant or grants of these lots on the American side, and that may be sent to the secretary afterwards.

JAMES WHITE, assistant to the chairman of the commission of conservation (Canada) and deputy head, sworn.

Mr. MACINNES. Mr. White, state your official position in the Dominion Government, and then you can give the information to the commission which you think will be of service in this matter.

Mr. WHITE. My official position is assistant to the chairman of the commission of conservation, and at a meeting of the executive committee I was instructed to appear before this commission and to make certain representations. Before entering on the subject it might be well to say a few words respecting the composition of the commission of conservation. The composition of that commission is well known to the Canadian members of the commission, but it may not be so well known to the United States commissioners. The commission of conservation is composed of 32 members, 20 appointed by order in council and 12 ex officio. Of the ex officio members, three are ministers of the Crown in the Dominion Government and one a minister of the Crown representing each Province in the Dominion. The 20 members appointed by order in council have been selected from the various portions of the Dominion, and with a view to getting on it representatives of the various great industries and individuals who are using the great natural resources of the country, such as lumbermen; and there are also on it a very considerable proportion of university men, chancellors of universities, and so on. I mention this because the composition of the Canadian commission is entirely different from that which is proposed for the commission of conservation of the United States. The work of the conservation commission is subdivided into seven committees. The executive committee of the commission is composed of the chairman of the whole commission, Sir Clifford Sifton, and the chairmen of the seven committees under whom we operate. I am instructed to read the following memorandum:

COMMISSION OF CONSERVATION,
Ottawa, Canada, June 14, 1915.

Chairman and Commissioners of the International Joint Commission.

GENTLEMEN: I have the honor to present herewith the views of the executive committee of the commission of conservation, Canada, in regard to the application of the St. Croix Water Power Co. and of the Spragues Falls Manufacturing Co. (Ltd.), now before you.

The subject has been considered by the executive committee of the commission of conservation, and the views herein expressed are the unanimous opinions of the committee.

The proceeding is understood to relate to the application of the St. Croix Water Power Co. and the Spragues Falls Manufacturing Co. (Ltd.), hereinafter

called "the companies," for the approval of a dam and water-power canal, and of the proposed diversion through the said power canal and the use by the companies of the waters of the St. Croix River, which would otherwise flow on the New Brunswick side of the international boundary line.

In the application of the St. Croix Water Power Co. it is stated that "The stockholders in this company and in the Spragues Falls Manufacturing Co., of New Brunswick, are the same individuals, and the two companies have worked and are working in unison for the purpose of carrying on and completing the undertaking hereinafter mentioned, the approval of which by the honorable the International Joint Commission is hereby sought."

The foregoing, therefore, demonstrates that the interests of the appellant companies are identical.

(1) In support of the application it is urged that inasmuch as the companies had become the owners of the riparian lands on both sides of the St. Croix River, and as all of the waters to be taken from the St. Croix River by their power canal would be returned to the said river after passing through the said canal and before leaving the St. Croix Water Power Co.'s lands, it never occurred to the companies that approval by your commission was necessary. They now apply to your commission for the approval of the said dam and said power canal and said proposed diversion of the waters of the St. Croix River.

(2) The history of the case is, briefly, as follows: The St. Croix River is an international stream, and as such is subject to the provisions of the boundary waters treaty, ratified May 5, 1910, between Great Britain and the United States. The Dominion Government, by an act to incorporate the Spragues Falls Manufacturing Co. (Ltd.)—2 Edward VII, chap. 103, 1902—empowered said company to acquire lands and water powers and to erect dams at Sprague Falls and elsewhere in the St. Croix River. By 4 Edward VII, chapter 126, 1904, the time for going into actual operation was extended for one year from July 18, 1905. This act also provided that powers granted by the act of 1902 respecting acquirement of lands under the provisions of the railway act were limited to the period ending July 1, 1914.

The company erected pulp and paper mills at Sprague Falls, on the Maine side of the St. Croix River, and erected a dam at the same point.

Finding the Sprague Falls power insufficient, the companies decided to supplement it. They therefore erected a large dam at Grand Falls, extending across the international boundary and creating a lake about 12 miles in area, thus flooding lands in the Province of New Brunswick and in the State of Maine.

They also constructed a large canal, thus diverting into the State of Maine the whole of the low-water flow of the St. Croix River, discharging it into the parent stream about three-quarters of a mile below the dam. From the power house, at the lower end of the power canal, the electrical energy generated therein is carried by a transmission line to the companies' mills at Sprague Falls (or Woodland, as the town is officially known).

(2) Considering the rights and claims of the companies, we understand that in Canada they acquired from riparian owners such lands as were required for their operations or were likely to be overflowed. It is also understood that they acquired from the St. Croix Log Driving Co. such charter rights as said company possessed to erect dams and other constructions in the St. Croix, and also such dams and constructions as are affected by the operation and constructions of the companies. From the Dominion Government they acquired the rights set forth above.

(4) The companies constructed the Grand Falls Dam and Canal subsequent to the passing of the boundary waters treaty of 1909. Article III of said treaty provides that—

"ARTICLE III.

"It is agreed that, in addition to the uses, obstructions, and diversions heretofore permitted or hereafter provided for by special agreement between the parties hereto, no further or other uses or obstruction or diversions, whether temporary or permanent, of boundary waters on either side of the line, affecting the natural level or flow of boundary waters on the other side of the line, shall be made except by authority of the United States or the Dominion of Canada within their respective jurisdictions, and with the approval, as hereinafter

provided, of a joint commission to be known as the International Joint Commission.

"The foregoing provisions are not intended to limit or interfere with the existing rights of the Government of the United States on the one side and the Government of the Dominion of Canada on the other to undertake and carry on governmental works in boundary waters for the deepening of channels, the construction of breakwaters, the improvement of harbors, and other governmental works for the benefit of commerce and navigation, provided that such works are wholly on its own side of the line and do not materially affect the level or flow of the boundary waters on the other, nor are such provisions intended to interfere with the ordinary use of such waters for domestic and sanitary purposes."

As the Grand Falls Dam was erected since the ratification of the boundary waters treaty, it has been erected and the power canal is making diversions in total disregard of Canada's rights as explicitly defined in Article III of said treaty.

It is also understood that in July or August, 1906, the Spragues Falls Manufacturing Co. applied to the department of public works, Canada, for approval of plans for a dam at Spragues Falls, and further that the application, like the present application, was apparently sent in when the dam was completed instead of before it was commenced.

At this point, therefore, Canada derives no benefit from her share of the waters of the St. Croix River and in which she possesses equal rights with the United States.

(5) The St. Croix River has a drainage area of 1,630 square miles, the east branch draining 690 square miles and the west branch 670. The drainage area above Grand Falls is practically the sum of these areas, viz, 1,360 square miles.

It is stated that when the flash boards are on the Sprague Falls Dam backs the water nearly up to the Grand Falls tailrace, and that the Grand Falls Dam partially drowns out the Spednic Falls on the East Branch.

The lake system of the St. Croix has an aggregate area of 150 square miles—nearly one-tenth of its total drainage area. As this lake surface affords valuable storage and makes the flow unusually uniform, the St. Croix is one of the most valuable water-power streams in the Province of New Brunswick.

The St. Croix Paper Co. is reputed to own about 335,000 acres of timberlands in approximately equal moieties in New Brunswick and Maine. The Sprague Falls plant operates under a head of about 46 feet, with a rated capacity of from 12,000 to 14,000 horsepower. The Grand Falls plant operates under a head of 48 feet with an estimated capacity of from 12,000 to 14,000 horsepower.

(6) The companies state that they only recently discovered that as their dam affects "the natural level" of the St. Croix—an international stream—and as their canal effects a "diversion" of its waters both constructions were in contravention of the treaty, and they are now applying to your commission for approval of these infractions.

In addition it is understood that these works—like the Sprague Falls Dam—were constructed without authority from the department of public works, Canada, and it is further understood that no permit for them has yet been issued by the United States Secretary of War.

(7) All the companies' mills and plants are in the United States, and except that a few Canadians may be employed in connection with the companies' operations all the benefits accrue to citizens of the United States, although under the principle of "equal benefits" one-half the benefits from the use of international water should accrue to Canada. This principle has been admitted at Niagara Falls, although at the Falls nine-tenths of the flow is on the Canadian side of the boundary.

Article II of the Alaska and Passamaquoddy Bay Convention, ratified August 23, 1892, provides that the international boundary shall be "drawn along the middle of the River St. Croix," and defines the "middle of the river" as the "center of the main channel or thalweg as naturally existing," except where such course would change, or disturb, or conflict with, the national character of an island as already established.

Oppenheim (Vol. I, p. 270) says: "In case a bridge is built over a boundary river, the boundary line runs, failing special treaty arrangements, through the middle of the bridge." This clearly recognizes the principle of equal benefits from artificial works constructed on boundary streams.

(8) This application presents an opportunity to take such action as will conserve Canada's interest in the waters of this international stream. In con-

sidering the action that should be taken to protect the interests of Canada, the executive committee endeavored to reach a solution that would: (a) Be fair and just to the companies in view of the concessions already made to Canada; (b) that would not unfairly impair the holdings of the bond and stock holders; (c) That would conserve the interests of Canada.

(9) The executive committee have given the foregoing full consideration and, before making definite recommendations, desire to state their position with reference to such matters as are now before the commission. While the commission of conservation of Canada are, primarily, charged with the duty of investigating and reporting upon the natural resources of the Dominion and the best methods of conserving them, they are also concerned with the preservation of good feeling with the great Republic whose borders march with Canada's from the Atlantic to the Pacific. They are desirous of upholding the principles of equal use and benefit of the boundary waters that are incorporated in the boundary waters treaty and which are the basis upon which all decisions of your commission rest.

(10) After full consideration, the executive committee of the commission of conservation desire to observe:

(a) That the practice adopted by the companies of constructing dams in international waters and, subsequent to construction, requesting approval of same, can not be too severely reprobated.

(b) The executive committee trust that the International Joint Commission will take such steps and will impose upon the St. Croix Water Power Co. and the Sprague's Falls Manufacturing Co. such conditions as will conserve Canada's interests in this international stream and in its valuable water powers.

(c) The executive committee recommend that the International Joint Commission undertake the investigation of the water power situation in the St. Croix River.

(Sgd.)

CLIFFORD SIFTON, *Chairman*.

In addition, I am instructed to say that the commission of conservation is of the opinion that no decision should be rendered at this hearing; that the hearing should be postponed to a later date, in order that representations may be made on behalf of Canada.

Mr. GLENN. There is an application here, and there is no protest filed before us from anyone.

Mr. MACINNES. The practice under your rule is that within 60 days after the filing of any such application the Government or any private person may file an objection. It is also provided that it may be done at the hearing, through counsel, and as the matter here is rather one of the establishment of the case of the applicant, pointing out by Canadian interests of the provisions of the treaty as I shall refer to later, it did not seem a case for the filing of any pleading which would cause further delay in the hearing of the case.

Mr. GLENN. What is the object of the delay?

Mr. MACINNES. To enable the Canadian interests to prepare their case.

Mr. WHITE. To enable the Canadian interests to prepare their case.

Mr. GLENN. When was the application filed?

Mr. WHITE. I can not say; we received notification of it only a month or possibly five weeks ago.

Mr. GLENN. It was filed on the 13th of September, 1914.

Mr. WHITE. So far as the commission of conservation is concerned, we knew nothing about it until five weeks ago.

Mr. GLENN. Then the members of this paper company are not the only folks who do not know what is going on?

Mr. WHITE. I would not say that; it might not have occurred to anyone that the commission of conservation was particularly interested in this matter.

Mr. GLENN. Has any complaint been made to your commission of any injury being done to anyone by the building of the dam?

Mr. WHITE. If you mean specific damage, in the shape of flooding lands, damage to riparian owners; no.

Mr. GLENN. No kind of complaint has been made?

Mr. WHITE. There is considerable complaint of damage being done to Canada's interests. We contend—but perhaps I should leave this to Mr. MacInnes—we contend that Canada has an interest in one-half the waters, and that to put it in the briefest form, the St. Croix Pulp & Paper Co. will some day exhaust the timberlands, and then that water power will be lost to Canada forever. We contend, in brief, that Canada owns one-half interest in that water.

Mr. GLENN. Can not they get that without interfering with the dam in any way?

Mr. WHITE. That is a point concerning which I would rather let Mr. MacInnes, as the lawyer representing the Dominion, speak.

Mr. GLENN. I was asking you as an engineer.

Mr. WHITE. So far as regards getting out the water is concerned, that is a very simple matter, considering that it is a purely engineering matter.

Mr. GLENN. They could get it?

Mr. WHITE. They could get it, certainly; there is no engineering reason why a canal could not be constructed on the Canadian side and one-half the water diverted.

Mr. GLENN. But can not Canada get one-half the power that the United States is getting on the Maine side without any interference with that dam whatever? Can they not get it lower down, for instance?

Mr. WHITE. Lower down the river?

Mr. GLENN. Yes.

Mr. WHITE. That involves another question altogether; that involves the acquirement of these particular water powers, possibly at a very high figure. I would be glad to answer any question from an engineering standpoint, but anything which affects the legal standpoint I can not speak of.

Mr. GLENN. I am not asking you as a lawyer; I am asking you as an engineer.

Mr. KOONCE. Do I understand you to contend that on account of this provision of the treaty, for an equal division of water between Canada and the United States, it is necessary to have two separate diversions at every point on the river?

Mr. WHITE. No; it is not necessary at all. But Canada's interest in that water should be conserved in some form.

Mr. KOONCE. Suppose the Government of Canada should grant the Spragues Falls Manufacturing Co. the right to use one-half the water at this point, and the Government of the United States should give the St. Croix Power Co., on this side, the right to use its one-half of the water, and thereby give their approval to these two structures that have already been built, would there be any objection to that on the part of the conservation commission, or could any objection be made to it?

Mr. WHITE. I do not get your point.

Mr. KOONCE. I say that these two structures have already been built jointly by a Canadian company, acting under a Canadian stat-

ute, and by an American company, acting under a State statute. Now, suppose the Government of Canada supplements the action it has already taken by vesting in this Spragues Falls Manufacturing Co. the right to use one-half the water of the St. Croix River at this point and the United States Government, through its Congress, authorizes the St. Croix Water Power Co. to maintain and operate its structures already built and to use one-half the water, would there be any objection on the part of the conservation commission to operating them as a joint structure. I mean, a joint operation by these two companies acting under the laws of their respective countries?

Mr. WHITE. On the face of it, your proposition does not contemplate any compensation to Canada?

Mr. KOONCE. What do you mean by compensation? Do you mean to pay the Government of Canada for the raw water in the river?

Mr. WHITE. Certainly.

Mr. KOONCE. That is a proposition we have never adopted in this country yet, that raw water should be paid for by a riparian owner who wanted to develop and use it for industrial purposes. We did not know that was the policy of Canada. When we own the riparian rights in the land, and in the soil of the stream, then we control, of course, the water that flows over it and we charge for it, as in the case of the St. Marys River. We own every foot of land along that river for about 2 miles, up to the international boundary, under the water and alongside it, and, therefore, we are in the position of a riparian owner, of an individual proprietor, and if anybody wants to use the water flowing there we charge for that.

Mr. WHITE. Exactly.

Mr. KOONCE. But that is the only place.

Mr. WHITE. Well, one place is sufficient for the purposes of my illustration. I understood Mr. Baxter to say this morning either the Province or the Dominion, presumably the Province, owns all the subaqueous land of the St. Croix River as it naturally existed. If so, all the Province would have to do would be to acquire riparian rights, and they would be in exactly the same position as the United States is in with reference to the Michigan Lake Superior Co., and the Michigan Lake Superior Co. pays \$1.50 per horsepower.

Mr. KOONCE. Two dollars and fifty cents per second-foot, to be exact.

Mr. WHITE. That is practically \$1.50 per horsepower per annum.

Mr. KOONCE. The United States Government there acts as a property owner, but under no other conditions does that principle prevail.

Mr. WHITE. Well, the cases are to a large extent analogous. If the Province acquires the riparian rights on the St. Croix River, then the Province would be in exactly the same position as the United States is in with regard to the Michigan & Lake Superior Co.

Mr. KOONCE. As I understand you, this corporation has not acquired the property rights along the Canadian side of the river.

Mr. WHITE. Are you speaking about the riparian rights or the subaqueous land?

Mr. KOONCE. The riparian and other property rights that would give them the right under Canadian laws to use the water of the river; they have not acquired these, as I understand you.

Mr. WHITE. That is a question for Mr. Baxter to answer. I understand him to contend that the Province of New Brunswick owns the subaqueous land of the St. Croix River to the international boundary. Is that right, Mr. Baxter?

Mr. BAXTER. That would be a matter of argument afterwards; it can not be put in your testimony.

Mr. KOONCE. I can not see the necessity for a separate diversion of water on both sides of the river all the way down the St. Croix. If you can combine two companies, one on each side, that will co-ordinate their works and make one operation. It makes no difference whether you bring the water on the American side or carry it down on the Canadian side when you produce the same result and each country or each corporation gets its proper amount of power.

Mr. WHITE. Possibly I could put the stand of the commission of conservation in a very few words if I say that their stand is one-half the water or adequate compensation, with a full acknowledgment of the rights of Canada in one-half the water. The commission, although it is not so stated in the memorandum I have read, gave special attention to that question at Sault Ste. Marie in the case of the Michigan & Lake Superior Co.

Mr. KOONCE. I notice that in one of your papers you have alluded to that.

Mr. GLENN. Do I understand you to mean that if they wanted to do so they could put a canal on either side, for the purpose of generating on that side as much power as they generate on this side? If they sought authority to do it, why that would involve the question of vested rights.

Mr. WHITE. Theoretically; yes.

Mr. GLENN. That would destroy the construction on this side; it would make the thing almost useless.

Mr. WHITE. I would not go so far as that; certainly it would be very detrimental.

Mr. GLENN. Mr. MacInnes, do you and the attorney general of New Brunswick ask that delay for the purpose of preparing your case? So far as I am concerned, I think the case for the applicant ought to be more developed and perhaps your side can put your case into better shipshape.

Mr. MACINNES. I do not know that we are asking for a continuance, but it would appear that this matter can not be disposed of by the commission at the present time, and for several reasons. It can not be disposed of, in the first place, until authority is given on the United States side by Congress, which will involve an act of Congress, and that act must precede, under the treaty, and under the ruling of this commission, any order which the commission can make on the subject. Further than that, this application is at present incomplete, owing to the fact that authority will likewise have to be obtained from the Dominion Government. Therefore, until that has been obtained it will be impossible for the commission to give its decision. That is fortunate, in view of what Mr. White has said, and also it will give the commission time for a full consideration of this whole situation.

Mr. GLENN. I do not so understand it. I do not understand that we have to wait until Congress has disposed of it. I understood we

would take action before Congress and before the Canadian Parliament did; that is to say, that we would make our recommendation to them.

Mr. MACINNES. I remember arguing that matter before the commission when Senator Turner was a member of the commission, and he took a very definite view that the commission would not make orders which might prove to be futile.

Mr. POWELL. That was a matter of policy.

Mr. TAWNEY. There is another reason that I think Mr. MacInnes may perhaps have forgotten. The rule you refer to, Mr. MacInnes, on which the decision of the commission was rendered, relates to cases where authority has previously been obtained. In such cases the commission will not proceed unless the plans for the construction of the work have been approved by the Government authorizing the work to be done. It does not apply, however, to a case where no authority has yet been given. In such a case the commission has reached no decision as to whether it will or will not proceed to render a conditional order, which order would become effective upon the applicant pending the authority such as he must have from the Government within whose jurisdiction the structure or obstruction is to be made. I was going to ask you for the basis of your statement that the commission can not proceed to make at least a conditional order until authority has been granted by the Government within whose jurisdiction the obstruction is to be located.

Mr. MACINNES. I would point to the language of Article III of the treaty, which states that no further use, obstruction, or diversion shall be made except by the authority of the United States or of the Dominion of Canada within their respective jurisdictions and the approval, as hereinafter provided, of a joint commission to be known as the International Joint Commission. The treaty as worded there shows there must be the authority of the respective Governments, to be followed by the approval of this joint commission.

Mr. POWELL. That does not follow.

Mr. TAWNEY. It does not necessarily follow.

Mr. POWELL. The two elements are necessary to legalize the act—first, authorization of the Government, and, second, the approval of this board—but there is no stipulation as to which should precede the other. So long as you get the two before you commence your work you are all right.

Mr. MACINNES. But this commission has already made a formal ruling.

Mr. POWELL. That is true; and this commission has pretty well gone back on it.

Mr. MACINNES. I do not understand how that could be.

Mr. POWELL. In that case Senator Turner read the judgment, and we found that in the particular case that was before us that we might go into a full investigation, and that the Government might not afterwards approve of it, and so we decided that the best line of policy to pursue was to have the approval of the plans generally by the United States Government before we took the matter up.

Mr. MACINNES. With all respect, that is the case here. These applicants have to obtain certain consent from Ottawa. Why should the representatives of the Dominion Government be called to appear

before this commission and give indorsations to a scheme which may subsequently be of no effect or value, because the necessary authority may not be given at Ottawa or may be given subject to certain conditions.

Mr. POWELL. In that particular case they did not even refer it to us. If you will read the last section of that, you will find that the rule which we were interpreting at that time was concerning a case in which the plans had actually been prepared or filed. In that particular case the wording of the act—I will read the article:

7. One duplicate original and 25 copies of the application shall be filed with each of the secretaries, and there shall be filed with each of the secretaries such drawings, profiles, and plans of survey on tracing linen, and such specifications and maps, as may be necessary to illustrate clearly the matter of the application.

Then, what follows:

8. In cases where either of the respective Governments shall have authorized the use, obstruction, or diversion of navigable waters all plans filed as aforesaid shall be accompanied with the approval thereof by the Government or proper department of the Government within whose jurisdiction such waters lie.

This case does not touch that at all.

Mr. MACINNES. With all respect—I had the honor of arguing the matter before the commission before——

Mr. POWELL. I know you had, but since we have considered it.

Mr. MACINNES. There is a written judgment of the commission which is in absolute broad language and which covers, I say with respect, this situation.

Mr. POWELL. The language is no doubt sufficiently broad. We had the matter up afterwards as a matter of controversy with the United States Government, and if you will read the correspondence the commission submitted respecting its course to the United States Government you will find that we distinguished between that case and cases similar to the present.

Mr. MACINNES. That may be so, but so far as that is concerned the only practical effect of that would be as an answer to what Gov. Glenn has just said with regard to postponement. But if your ruling is that your previous ruling does not apply here, it still remains a question as to whether this matter is one which can or which ought to be dealt with by the commission at the present time.

Mr. GLENN. Mr. MacInnes, right there; if we are going to wait until the Parliament of Canada or the Congress of the United States takes action, and they should be adverse, we would never take any action at all here.

Mr. MACINNES. Quite so.

Mr. GLENN. But, on the contrary, we can recommend it to them or take action prior to their action for the purpose of letting them have the benefit of what we have found. Then, of course, we should take action before either Parliament or Congress meets.

Mr. MACINNES. If you are able to do so.

Mr. GLENN. If the other side is not ready to present their full case now, I would be perfectly willing to have another hearing, but I do not want to take testimony now and hear argument and take testimony again and have another argument. What I want to know is

whether you are ready to go on or whether you want to stop now? Mr. White intimated that he was not ready to present his case.

Mr. MacINNES. I do not know, without conference with Mr. James White, as to what additional information he may have to present or whether we can present it to-day or not, but I am certainly able to point out this to the commission, and that is that it would appear very clearly that the case of the applicant is not yet complete, and that quite apart from any question of the competency of the commission to deal with the matter before or after action by Congress or the Dominion Parliament. This application is made under article 3 of the treaty. Then it is provided under article 8 of the treaty:

VIII. This International Joint Commission shall have jurisdiction over and shall pass upon all cases involving the use or obstruction or diversion of the waters with respect to which under Articles III and IV of this treaty the approval of this commission is required, and in passing upon such cases the commission shall be governed by the following rules or principles which are adopted by the high contracting parties for this purpose.

This is an agreement between the high contracting parties by which the commission is governed, and in accordance with which it must act.

The high contracting parties shall have, each on its own side of the boundary, equal and similar rights in the use of the waters hereinbefore defined as boundary waters.

In this case the applicants have constructed works clear across the river. They have constructed them at the present time in such a way that there can not be development on the Canadian side at that particular point of one-half of the waters, as was done at the Soo and as was dealt with by this commission at the Soo. Now, then, the fact that they constructed their works first and made this application afterwards manifestly does not and can not put them in a better position than if they had complied with the treaty and with the law. Therefore they must be taken to be in the same position, although with all due consideration of existing facts and without being arbitrary, but in such a way as to preserve the rights of Canada.

Now, the rights of Canada, so far as this commission are concerned, are not a matter of discretion, but are absolute, and are so stated in the treaty. It is laid down in the treaty that the commission in dealing with this application shall be governed by the following principles that the two countries shall have, each on its own side of the boundary, equal and similar rights in the use of the waters.

Now, therefore, it is clear, and it seems impossible to controvert, that in view of the situation created by these applicants themselves, in preventing development at this point to establish as part of their case, that the works which they have constructed will not prevent, but, on the contrary, will allow of Canada getting its equal and similar share in the waters of this river—apart, of course, from any existing works which were in existence at the time the treaty was made and to which the treaty is not applicable. Now, that is part of the applicant's case, and it is on them to make out their case. So far as their case stands at present there is no such evidence to show how Canada can get, and how this commission can grant to Canada, what it must be that Canada gets under the treaty, namely, an equal and similar share in these waters.

Mr. GLENN. Do you contend that you are bound to get it at this particular dam?

Mr. MACINNES. I do not.

Mr. TAWNEY. You mean to say that we must provide that Canada will get the benefit of an equal amount of the water on its side or that we afford an opportunity for Canada getting it hereafter if she wishes to exercise her right to it.

Mr. MACINNES. That is it.

Mr. TAWNEY. That is what I thought.

Mr. GLENN. And you think they have not shown that Canada can be protected?

Mr. MACINNES. Clearly they have not. There was a general statement made by the president of the company, who was not claiming to present the case fully on that point. Their case has not been so made out. Therefore, it would appear that quite apart from any technical question of authority from Congress or from the Dominion Parliament time will be required by this commission to obtain this information from the applicants, or if the commission should prefer to do so by themselves, in order to cover this point, which is not a matter of discretion with the commission, but which is absolutely laid down in the treaty.

Mr. POWELL. Would not the logical outcome of your argument be that we should impose a general restriction on the amount of the diversion and lay down a condition that in no case should it exceed one-half of the natural flow.

Mr. MACINNES. I do not quite follow how that could be worked out as a matter of practical engineering.

Mr. POWELL. Let the engineers work it out, as long as we authorize a diversion from that river of one-half of the flow.

Mr. MACINNES. If I understand you aright, the result of such an order would be to hurt these applicants and do no good to Canada.

Mr. POWELL. That would be an argument of attrition, you say, but it would not be a matter that would interfere with our power.

Mr. MACINNES. I am afraid I do not follow you.

Mr. POWELL. Go right to the bottom of the treaty, Article VIII, which speaks about diversion. How on earth are you going to get a diversion of the waters of a stream on one side, which is going to affect the level on the other, and still give the other party one-half of the water? Any person could make application to us for the diversion of a portion of the water on the boundary line, and we may exercise our judgment upon that. But if you divert a portion of the water, do you not actually take away the right of the State on the other side of the boundary line to the use of one-half of the water?

Mr. MACINNES. Yes; and that is what would have been the situation here if they had applied before constructing their works. You would have the same situation that you dealt with, and dealt with so effectively at the Soo; you would establish joint control and diversion at the same place on each side of the river.

Mr. POWELL. The country taking one-half, you say, is required to have joint works and control on each side. These applicants have, in ignorance of the provisions of the treaty, gone ahead and constructed their work in such a way that that can not be done. I do not

understand you to suggest that a work should be done which would be useless for that purpose, and yet you say you may only take one-half the water. I am conceding for a moment that your position is right about one half the water; you say you must never make an encroachment upon the other half; that is your contention?

Mr. MACINNES. Yes.

Mr. POWELL. Supposing that is correct, would not that only apply to this: That we must make an order which reserves to Canada its half—you say there would be engineering difficulties in the way?

Mr. MACINNES. Yes; reserve to Canada its one-half if it can be dealt with by a regulation as was done at the Soo.

Mr. POWELL. What would be the difficulty here on the Canadian end of the dam to cut a channel down through there? That is simple enough.

Mr. MACINNES. It is not simple enough, with all respect. The regulating works and gates, and so on, are on the American side, and the whole work is constructed, not with a view of diversion at this point by both companies as at the Soo, but as an engineering project for diversion on the one side only.

Mr. POWELL. That would be creating a condition of affairs like at the Soo, where we regulated the works and the head gates and everything else on each side.

Mr. MACINNES. You did it at the Soo before the work was done, but in this case the work has been done.

Mr. POWELL. Why can not we do it after the work is done?

Mr. MACINNES. Because this dam cost \$1,000,000, and it does not appear to me to be common sense to make an argument which would suggest, if it can be avoided, that a \$1,000,000 work should be destroyed. I would not make such an argument if the treaty provisions can be carried out in any other way.

Mr. POWELL. We could make a provision in our order that in the event of a Canadian company coming on, with development, on the Canadian side, that the works of both should be under the control of a joint board, to let the water flow through, as we provided for at the Soo.

Mr. MACINNES. Is that giving equal and similar rights in such a way as would be consistent with common sense; that a dam worth \$1,000,000 should be practically destroyed, if it can be done in some other way? Do you wish me to put such an argument as that before you?

Mr. POWELL. That would not be destroying the dam or destroying the works at all. It would be simply depriving them of one-half the water when they contemplated taking the whole of it.

Mr. MACINNES. That dam is not constructed for the purpose nor can it be used for a double diversion on both sides as it stands at present.

Mr. POWELL. What is to prevent a power canal being excavated on the Canadian side the same as on the American side? The dam itself is only for the purpose of the reservoirs. It has not any power capacity whatever in itself. Except provision is made for a runway, in addition to a great freshet, the water would go to waste instead and imperil the existence of the dam.

Mr. MACINNES. With all respect, you are saying to me that I am making a suggestion that the treaty provision should be carried out in an unbusinesslike manner rather than in a businesslike manner.

Mr. POWELL. That is the result of it having proceeded so far in a very unbusinesslike way.

Mr. MACINNES. That is the fault of the applicant and not the fault of the country, that is presenting its case here now. They made no such suggestion that they would impose on themselves such conditions as would allow Canada to get its rights at that point. We take it that Canada is to get its rights at that or some other point. The application is defective, because no provision is made for Canada getting the water power which the treaty says it shall get.

Mr. POWELL. The application is there, and we may impose conditions such as we see fit. The section itself protects that for it speaks about the approval on conditions. We lay down the conditions.

Mr. GLENN. Have we not gone off the point we started in at, which was as to whether we should proceed now or not. This is all very interesting, but it can not be of any benefit to us in deciding the case. As I understand it, Mr. Curran has closed his case. It is not for the other parties in the case or for us to say whether he has made out a case or not. The question now is, Are you ready to go on with the case? It seems to me you should confer and see what testimony you have. If you are not ready to go on with the argument we will consider that.

Mr. MACINNES. I have Mr. Stewart here whom I would like to call, and the attorney general of New Brunswick may have a witness to present. I shall consult with Mr. White as to how the additional material he suggests should be put in, and that may not necessarily be oral evidence, but written evidence.

W. J. STEWART, chief hydrographer of the Dominion of Canada, sworn.

Mr. MACINNES. Mr. Stewart, you have some information to give to the commission with respect to the stream flows of the St. Croix River in different months. Would you give a convenient reference to that or state the substance of it?

Mr. STEWART. You were asking Mr. Hosford this morning about some figures, and these figures are contained in a table in the report of the State of Maine Water Storage Commission, the first annual report, pages 84 to 91. These figures are not in the shape you asked for them this morning. They are just simply the run-off for various years with the feet per second per square mile, and you were asking this morning to have these in horsepower.

In working out the horsepower I took the head as 46 feet and the turbines as 80 per cent efficiency. In 1903 the horsepower would be 13,000.

Mr. MACINNES. At what point?

Mr. STEWART. At Grand Falls.

Mr. MACINNES. Would these figures be with or without the storage, which has been created by the erection of the dam?

Mr. STEWART. They are the figures for the run-off, without storage, for these years that have been observed. The years 1904, 1905, and 1906 are not complete. The following is the result:

Horsepower.		Horsepower.	
1907	12,000	1910	9,100
1908	9,100	1911	8,700
1909	13,000	1912	6,500

Mr. MACINNES. The mean would be 11,000?

Mr. STEWART. About that.

Mr. POWELL. Does that mean the mean horsepower of each year and taking the mean of this again, or does it mean the maximum?

Mr. STEWART. The quantities I gave first are the mean horsepower for the year, then there is the mean of the means.

Mr. MAGRATH. How many years of these were what are known locally as dry years?

Mr. STEWART. I would say that 1910 and 1911 were dry years.

Mr. MAGRATH. That is two years out of the seven years?

Mr. STEWART. Yes.

Mr. GARDNER. That would include the flood waters?

Mr. STEWART. Yes. Of course the quantity is the mean of the month and the flood waters would be included.

Mr. MACINNES. You have some familiarity with this river, Mr. Stewart, is there any information you could give to the commission about it?

Mr. STEWART. I think pretty nearly all the points have been covered. I am not personally acquainted with the river. My information all comes from the reports and from looking over the various maps and from a couple of visits which I have made to the river. There is practically no power that I can see that can be developed above Grand Falls. The power would be very small there, and the flow of the east branch—that is, the only branch in which Canada could get any power—would be only one-half the whole river. Apparently the west and east branches have about the same discharge.

Mr. GLENN. Are there any places below Grand Falls, after the canal comes back into the original stream, that could be developed?

Mr. STEWART. So far as I can see nearly all of these have been taken up by private individuals. I presume the riparian owners in some places have certain rights there from their own country.

Mr. GLENN. Are there any that have been developed?

Mr. STEWART. Not that I know of. Apparently, so far as the plans show, they are all taken up.

Mr. TAWNEY. Have you any data to indicate the relative amount of power that is now used on the American side and on the Canadian side from the lower stretch of the St. Croix River up to Spragues Falls?

Mr. STEWART. So far as I know the only large development on the Canadian side is the cotton mill in Milltown, and I understand that is taking a little over 3,000 horsepower.

Mr. TAWNEY. Are there not some powers above Milltown wholly constructed and used on the Canadian side?

Mr. STEWART. They are very small; there are some small mills.

Mr. TAWNEY. I see in the first annual report of the Maine State water storage commission this reference to the water privilege at Salmon Falls; that is, at that cotton mill, is it?

Mr. STEWART. Yes.

Mr. TAWNEY. At page 89 of the report just referred to it says that the next occurs at Salmon Falls and that the power is developed there and that it is owned by the Canadian Cotton Mill Co. (Ltd.), who have a fine mill on the New Brunswick bank employing over 700 hands; the dam is a costly structure of cribs backed with stone,

and that it develops a normal fall of about 21 feet 3.54 inches, and that turbines are installed, and that from 1,000 to 1,100 horsepower is actually employed. It says there is another dam near the head of tidewater which has a fall reckoned normally at 10 feet and varying from 8 feet at times in dry weather to 12 or 13 feet in freshet. Do you know whether that is on the Canadian or the American side?

Mr. STEWART. The sawmill is on both sides, I think, but there is development there of an electric-light plant. I think the electric-light station is on the American side.

Mr. TAWNEY. Do you say it is on the American side?

Mr. STEWART. I think so.

Mr. TAWNEY. Do you know?

Mr. STEWART. Yes; I think it is on the American side. I am informed now by the secretary of the Board of Trade of St. Stephen that the water-power development for the electric-light station is on the Canadian side and that they have an auxiliary steam power on the American side. I think that is correct, but I do not know from my personal knowledge.

Mr. TAWNEY. There are other water-power franchises and water powers developed, are there not, above the cotton mills and below Spragues Falls?

Mr. STEWART. There are quite a number of them.

Mr. TAWNEY. Can you give us any information as to whether the development is on the one side or the other above the cotton mills?

Mr. STEWART. I can not give you any definite information as to that. It seems to be in the middle of the river and pretty badly developed. They are all very old-fashioned.

Mr. WYVELL. What would be the total horsepower of all descriptions on the Canadian side, about?

Mr. STEWART. The Canadian cotton mill shows about 1,100 horsepower actually in use. I do not know what amount there is in the electric-light station.

Mr. WYVELL. I thought you said there was 3,000 horsepower at the cotton mill.

Mr. STEWART. It says here there are only 1,100 horsepower in use; it is possible to develop it to 5,000.

Mr. GARDNER. Is there any more evidence to present?

Mr. BAXTER. I would like to put on record a petition of protest from a number of the residents of St. Stephen and neighboring territory, made to the lieutenant governor of New Brunswick.

Mr. WYVELL. It is a petition against what?

Mr. BAXTER. Everything. The following is the petition:

To his honor the lieutenant governor in council:

The petition of the undersigned residents of the towns of St. Stephen and Milltown and the adjacent parishes of St. James and St. Stephen, and other outlying parishes, all in the county of Charlotte and Province of New Brunswick, Canada, humbly sheweth—

That whereas the St. Croix River is an international boundary line separating the said Province of New Brunswick from the State of Maine, one of the United States of America;

And whereas the said river among other things is noted for peculiar physical conditions which makes it of great value as a river, particularly adapted to the development of water power;

And whereas the Spragues Falls Manufacturing Co., together with the St. Croix Waterpower Co., both companies duly incorporated by the Parliament

of Canada, or the Province of New Brunswick, have caused the said river to be dammed at Spragues Falls, so called, in the Parish of St. Stephen aforesaid, and also at the Grand Falls (so called), 7 miles farther up river in the Parish of St. James aforesaid, thereby developing a vast amount of power estimated to be equal to from 16,000 to 20,000 horsepower at both points;

And whereas the said St. Croix Paper Co. have erected large paper mills at Woodland, Me., a point directly opposite the Spragues Falls aforesaid, and the St. Croix Water Power Co. and the Spragues Falls Manufacturing Co. have diverted all the water of the said river to the Maine side of the said boundary line, and the St. Croix Water Power Co. and the Spragues Falls Manufacturing Co. are now in the act of diverting all the water of said river to the Maine side at Grand Falls aforesaid, for the purpose of generating electrical power to be transmitted to the town of Woodland aforesaid, to be there used for the enlargement and extension of the paper mills referred to, and which must add very materially to the growth and development of the already prosperous town of Woodland aforesaid, but up to the present time no development has taken place on the Canadian side of said boundary line, and your petitioners believe that the said St. Croix Paper Co. have studiously avoided and discouraged any attempts toward industrial development on the Canadian side of said boundary line;

And whereas the said St. Croix Water Power Co. and the Spragues Falls Manufacturing Co. have given public notice of their intention to apply to the International Waterways Commission for authority to so divert all the water of the said river to the Maine side thereof, at the Grand Falls aforesaid, thereby preventing industrial development that might bring pecuniary gain to your petitioners, as also to all the people living on the New Brunswick side of the said international boundary, if a just proportion of the water power was reserved for industrial purposes on the Canadian side of said boundary line, as aforesaid:

Your petitioners therefore humbly pray that your honor will cause representations to be made to said International Waterways Commission looking to a just division of the water power so developed as aforesaid, and to be used on the New Brunswick side of the said river as in the premises set forth and for the purposes aforementioned, and a proper adjustment of all claims arising out of the diversion of the waters of the river as aforesaid.

And as in duty bound will ever pray.

JOHN N. FLEWELLING, of St. Stephen, New Brunswick, secretary of the board of trade.

MR. BAXTER. You are secretary of the Board of Trade of St. Stephen?

MR. FLEWELLING. I am.

MR. BAXTER. I should like you to give to the commission any information you possess, either personally or as secretary of the board of trade, bearing on this matter. Have you knowledge as to other power plants on the St. Croix River?

MR. FLEWELLING. There are a great many other power plants on the St. Croix River.

MR. BAXTER. Can you detail them and say which are on the American side and which on the Canadian side?

MR. FLEWELLING. I can not.

MR. BAXTER. If there is anything on behalf of the St. Stephen Board of Trade you can say to the commission, tell your own story.

MR. FLEWELLING. There is nothing that the St. Stephen Board of Trade wish to say with regard to the matter. The only reason we took any interest in the thing whatever was because of a fact which had evidently been overlooked by some of the highest powers, and we began as an organization to circulate a petition having for its prayer simply the conservation of the rights of the Dominion of Canada. We did not consider the matter from a local standpoint at all. We looked on it purely and simply as a national proposition, and we

took this opportunity of getting the matter before the proper authorities. Previous to that I think the commission of conservation itself had no knowledge of the existing conditions.

Mr. BAXTER. I presume, of course, you had in mind this, that whichever side of the river development takes place upon it will have a resultant benefit in increased population.

Mr. FLEWELLING. I think so.

Mr. BAXTER. That was your view from the point of view of the board of trade?

Mr. FLEWELLING. To a certain extent; yes. We feel, as a board of trade, that we are getting great benefit from the present construction of the works, but we would have received a larger benefit if they had divided the work on each side of the river, the same as they did at Sault Ste. Marie. That might have been done at an earlier date, but of course not now.

Mr. GLENN. Was there any other concern asking for a division of the water power at the time they commenced?

Mr. FLEWELLING. We had as a board of trade inquiries on different occasions from foreign manufacturing concerns, asking what quantity of water power we could furnish. I think Mr. Curran's company has been called upon to name a price at which they would sell their electrical power, as well as some other people holding water powers along the river, and the price has practically been prohibitive. I think, in launching our shoe factory some few years ago, we asked Mr. Curran for prices, which were enormous.

Mr. CURRAN. You are mistaken about that. The shoe-factory people came to me, and I said I would like to furnish the power, but it was already given to the trolley line.

Mr. FLEWELLING. And you now say you can furnish power?

Mr. CURRAN. I have since put in additional wheels so that I can furnish power. When you spoke to me there was nothing but the trolley wheel, furnishing barely sufficient power for the street railway.

Mr. FLEWELLING. This was an industry which was launched entirely by the board of trade, and when we were looking for electric power we found it very hard to get. We did succeed in getting it from one of the others.

Mr. CURRAN. Your people get a large benefit from this development?

Mr. FLEWELLING. Yes; I know, and we appreciate the fact; we are not complaining of that whatever.

Mr. CURRAN. Don't you think you would get more benefit from a big concern like that than you would from small concerns dividing the power?

Mr. FLEWELLING. We would not. I contend that at Sault Ste. Marie the Canadian Soo is getting considerably more benefit, having the water divided as it is, than if it were altogether on the American side.

Mr. CURRAN. There you have ample power to give to the concerns on both sides, but here you have not. Do you think there is sufficient power up there on the St. Croix River to divide it on both sides?

Mr. FLEWELLING. I am not an engineer, but I think considerably more power could be developed at that point.

Mr. CURRAN. I wish it could. You hear no complaints from the people here at all in regard to this plant as a local matter?

Mr. LEWELLING. Not as a local matter. It is entirely a question of whether Canada should get its share. The rights of Canada should be protected.

Mr. CURRAN. You are aware of the fact that the Canadian cotton mill gets all the water of the river where it is, on the Canadian side?

Mr. FLEWELLING. I have heard that to-day.

Mr. BAXTER. Is there anyone from the board of trade present who wishes to say more than you have said?

Mr. FLEWELLING. No.

Mr. BAXTER. That relieves me from the necessity of having to call other witnesses.

Mr. COCKBURN. Was it through your board of trade that Mr. White and the conservation commission got this information about the dam?

Mr. FLEWELLING. I do not know.

Mr. COCKBURN. I understood you to say they did not know anything about it until you called their attention to it.

Mr. FLEWELLING. I did not call their attention to it.

Mr. COCKBURN. Did you have any communication or correspondence with the conservation commission?

Mr. FLEWELLING. Not at all.

Mr. COCKBURN. Did your board of trade make any investigations with regard to the particular benefits that St. Stephen and the county of Charlotte derive from this enterprise before you made that protest?

Mr. FLEWELLING. What protest did we make; the board of trade made not protest.

Mr. COCKBURN. You entered a protest with the lieutenant governor, which has just been filed.

Mr. FLEWELLING. That protest was from the citizens of St. Stephen and not from the board of trade.

Mr. COCKBURN. Did it emanate from the board of trade?

Mr. FLEWELLING. Several people passed the petition around; there were several petitions; not only one, but several.

Mr. COCKBURN. Was it not brought before your board of trade?

Mr. FLEWELLING. Yes.

Mr. COCKBURN. It emanated from the board of trade.

Mr. FLEWELLING. No.

Mr. COCKBURN. Did your board of trade make any efforts to ascertain what the direct benefits to your community were from this enterprise at Woodland?

Mr. FLEWELLING. We did not; we have full knowledge of it.

Mr. COCKBURN. Do you know how much money was paid to Charlotte County people by that enterprise last year?

Mr. FLEWELLING. I do not.

Mr. COCKBURN. And yet you say you have full knowledge of the benefits you are getting. Have you full knowledge?

Mr. FLEWELLING. To a certain extent.

Mr. COCKBURN. To what extent?

Mr. FLEWELLING. We appreciate the fact that the town of St. Stephen is deriving a certain amount of benefit.

Mr. COCKBURN. Do you know how many hands are employed by the St. Croix Paper Co.?

Mr. FLEWELLING. No.

Mr. COCKBURN. Do you not know what proportion of the employees live in Charlotte County?

Mr. FLEWELLING. I do not, but it is very small.

Mr. COCKBURN. Is it very small, are you prepared to swear it is very small?

Mr. FLEWELLING. If you have the information there you can give it to the commission.

Mr. COCKBURN. Are you prepared to admit it is 33 per cent of the whole number of employees?

Mr. FLEWELLING. I do not know.

Mr. MIGNAULT. Can you enlighten me, Mr. Cockburn, as to the line of your questioning; I do not see its relevancy.

Mr. MAGRATH. Just state the benefits that you have reference to, so that it may go on the record.

Mr. COCKBURN. I have a statement here.

Mr. MAGRATH. What statement is it?

Mr. COCKBURN. It is a statement from the bookkeeper of the company.

Mr. BAXTER. What do you want to put in before the commission?

Mr. COCKBURN. A statement which shows the amount of money that has been paid out and the proportion that has been paid to St. Stephen people and the people living in New Brunswick.

Mr. BAXTER. If you say as counsel, that you believe it to be honestly and fairly prepared, and to represent correctly what it professes to represent, I do not know that there would be any objection to it, so far as it is intended as an offset to any evidence that has been produced.

Mr. MAGRATH. I think it would be interesting to have it on the record.

Mr. COCKBURN. It would be an answer to the attempt on the part of the witness to minimize the advantage Canada is getting.

Mr. FLEWELLING. I made no such attempt.

Mr. BAXTER. The question would be the same even if 99 per cent of the employment were afforded the people on the Canadian side of the river; the question from a national and provincial point of view would still remain.

Mr. COCKBURN. There are 500 hands employed yearly by the St. Croix Paper Co. of whom 33 per cent are residents of Charlotte County, New Brunswick, in which St. Stephen is situated. During the logging season of 1914-15 the company bought approximately 25,000,000 feet of pulp wood for which they paid \$250,000—\$220,640 of that amount was paid for lumber cut and to lumbermen in the county of Charlotte on the Canadian side and only \$33,000 of that amount was paid to lumbermen in the State of Maine. In addition to that amount, 16,645 cars of pulp wood were purchased from the Eastern Pulpwood Co., all of which came from the Canadian side, at a cost of \$99,870. To the 500 hands employed in the paper mill and in connection with the pulp mill, \$447,115 are paid out annually. In addition there are 175 hands employed in the paper-bag mill, the annual pay roll to whom exceeds \$75,000.

Mr. TAWNEY. What percentage of that pay roll is on the Canadian side?

Mr. COCKBURN. Thirty-three per cent.

Mr. FLEWELLING. Mr. Cockburn states that these are residents of Charlotte County. They may have been residents of Charlotte County, but I think the great majority at present are living in Woodland or thereabouts, and their entire earnings are spent, or supposed to be spent, on that side.

Mr. COCKBURN. I am stating this as it was given to me by officers of the St. Croix Paper Co., and the statement is that 33 per cent of their employees were residents of Charlotte County, in the Province of New Brunswick, actually residing and supporting their families in that section of the country. They are not residents of Calais, they are residents of the Canadian side of the river and support their families there. That is information coming from men in whose word I have absolute confidence.

Mr. TAWNEY. Do you know what the fall is from Grand Falls down here to the dam site where the electric power plant is located?

Mr. FLEWELLING. I have no idea.

Mr. TAWNEY. Do you know how many powers, either developed or undeveloped, there are between Grand Falls and the power plant in the lower river?

Mr. FLEWELLING. I do not know.

Mr. WYVELL. Is there not some engineer present who can answer these questions? I would like to have this information.

Mr. KOONCE. I understood you to say that on account of this complete development by this company the full amount of power on the river had been obtained and Canada did not get its share. If the development had been entirely on the American side, would the Canadian authorities have had in connection therewith development on their side? Would the development have been greater than it has been under this particular company?

Mr. FLEWELLING. Not at all, but I think the engineers could develop as much on one side as on the other; the same dam does the work.

Mr. KOONCE. Would you have developed that power?

Mr. FLEWELLING. We do not know. Some pulp company might come along and want to get the same opportunity on the Canadian shore; we could have the same chance for development on our side if the water was there.

Mr. KOONCE. At the Canadian cotton mills you have 5,000 horsepower and you only use about 1,000.

Mr. FLEWELLING. I was told the cotton company did not have sufficient power to work at times and that the cotton mill had been compelled to close down.

Mr. KOONCE. You have your full share of the water there, why do you not use it?

Mr. FLEWELLING. I am told there are times when they do not get sufficient power to operate the plant, but as to that I can not speak definitely.

Mr. MIGNAULT. I think we should have correct and definite information as to the power situation on the St. Croix River, and I expected that some one here would be able to tell us.

Mr. CURRAN. I think I can tell you very nearly the exact power of every dam on the river.

Mr. MIGNAULT. Can you give us all the figures with respect to it?

Mr. CURRAN. I think I can.

Mr. MIGNAULT. Well, what is it?

Mr. CURRAN. Starting with the electric light power, I have been attorney for all of them for 25 years.

Mr. POWELL. Have you reports from engineers on the matter?

Mr. CURRAN. I think I could get the reports of the engineers.

Mr. MIGNAULT. We should have a correct and definite statement from some engineer.

Mr. TAWNEY. I think, Mr. Curran, as a lawyer, you will appreciate the importance of having positive and correct information from some competent engineer on this matter. I do not understand that you are an engineer.

Mr. CURRAN. I can produce an engineer who happens to be out of town to-day; he has examined every one of them.

Mr. TAWNEY. Have you the report of a competent hydraulic engineer on the subject?

Mr. MACINNES. Mr. James White is here, and he has gone over this and has a report on the subject.

JAMES WHITE, assistant to the chairman of the commission of conservation (recalled).

Mr. MACINNES. Here is, Mr. White, a report published by the commission of conservation in 1911, and I believe it fairly represents the situation on the St. Croix River up to about the end of 1910.

Mr. WHITE. Yes.

Mr. TAWNEY. By whom was the investigation made on the ground?

Mr. WHITE. The investigation was made by one of our engineers. There is no distinction made here between the Canadian and the American, except that in the "Remarks" in nearly every case it is distinguished, whether a sawmill or a cotton mill, or whatever it is, on each side of the river. On pages 264 and 165 all the water powers are mentioned.

Mr. CURRAN. Does he mention the undeveloped power below the paper mill?

Mr. WHITE. Below Spragues Falls there is the Baring Dam.

Mr. CURRAN. What does he give for that?

Mr. WHITE. A head of 8 to 10 feet.

Mr. CURRAN. Does he say anything about developing that dam so as to get a head of 21 feet or 22 feet?

Mr. WHITE. No. The moment you embark on the question of a possible head you embark upon a question which has unlimited possibilities. It is not possible for anyone to undertake to deal with that question in a river such as this. It is often possible to increase your head, but the cost of acquiring riparian lands and other rights and the damage may be so great as to make it unprofitable. This is a succinct statement of the number of falls in the river as they were in 1910.

Mr. WYVELL. Does that statement give the undeveloped power, the undeveloped sites, and the possibilities of using them?

Mr. WHITE. Yes and no. The moment you commence to deal with

water power, if you deal with it in an academic way, you embark upon a very wide area. If you have a certain descent in your fall or in your rapids, you can measure that, and you can measure the flow of your river and you can arrive at the possible horsepower; by adding at your dam you might increase your head so as to double the possibilities of the development, but to launch out on an examination of that kind will lead you far afield. It is academic unless you are dealing with a particular water power. In dealing with a whole river you must take the river as you find it.

Mr. WYVELL. In this particular case, concerning which you read that statement, you do not contend that they could change the works so as to run the water down on the Canadian side, or that it would be profitable to do so?

Mr. WHITE. No. There never was a contention put forth by the commission of conservation to that effect. The contention of the commission of conservation is that Canada's right to have that water power should be recognized.

Mr. WYVELL. But not recognized in the sense that a canal should be built.

Mr. WHITE. No; recognized by the International Joint Commission, and that something should be done to substantiate that recognition. We never contended that one-half that water should be taken away at the Grand Falls Dam and one-half taken away at Spragues Falls Dam. The result would be, as Mr. MacInnes stated, to simply destroy this investment which the St. Croix company had made. The commission of conservation did make a specific recommendation in view of the action of the United States with reference to the Michigan & Lake Superior Power Co., and it pointed out that the United States assessed annually at practically \$1.50 per horsepower per annum. Whether compensation is to be made in that section or in some other section is immaterial, so far as Canada's rights are concerned in the matter.

Mr. TAWNEY. I want to offer a suggestion to the commission. The question of the amount of power in this stretch of the St. Croix River between Grand Falls and the lower dam at St. Stephen, together with the development that has taken place thus far on both sides of the line, is important, and I was going to suggest that the commission request an engineer of the War Department and the chief hydrographer or engineer on the Canadian side to make an investigation and report to the commission on just exactly what the situation is with respect to the developed power and the undeveloped power and their respective locations.

Mr. MIGNAULT. I agree with that suggestion.

Mr. GARDNER. It is very necessary, I think, to have that information definitely.

Mr. WYVELL. We would be glad to have that done.

Mr. MIGNAULT. I think it is essential.

Mr. GLENN. Congress does not meet until December and there is no great hurry about that.

Mr. MACINNES. The suggestion made by Mr. Tawney is exactly what was in my mind. Under that suggestion we would get the real facts and facts up to date, and also, I presume, the investigation of these experts would cover along the lines of our contention that the

treaty provides, and that its provisions must be carried out, that Canada should get equal rights.

Mr. POWELL. They will report the facts and we will place our interpretation on them.

Mr. BAXTER. I suppose they will work together.

Mr. WYVELL. Oh, yes; they will go right together.

Mr. TAWNEY. Certainly, they will go together and make a joint report.

Mr. MIGNAULT. I agree with the suggestion of my brother Tawney; I think it is the only thing to do.

Mr. WYVELL. I have spoken to the engineer of the War Department, and he says that is entirely practicable.

Mr. MACINNES. Mr. Stewart tells me he will be glad to place his services at the disposal of the commission.

Mr. POWELL. We do not want to leave it in the air. Can we fix a time within which the investigation and report should be made? It having been agreed that we shall request the engineer officer on this side in charge of this district and the chief hydrographer on the Canadian side to make an investigation, can we not fix a time for their report?

Mr. MAGRATH. May I suggest that we ask both Governments to give us engineers to make this investigation?

Mr. TAWNEY. I do not think either Government would object, if the commission requested, as the result of a hearing like this, the engineer officer in charge of this district and the chief hydrographer of Canada to make an investigation of the matter.

Mr. POWELL. And if they object we can employ our own experts.

Mr. TAWNEY. It will not be necessary to do that.

Mr. POWELL. When we meet again to consider this matter, there are certainly difficulties for the respective counsel to devote their attention to.

Mr. GLENN. I would suggest that these gentlemen make their investigation and report to us at our regular half-yearly meeting in Ottawa on the first Tuesday in October.

Mr. TAWNEY. Speaking for the War Department, Mr. Koonce, do you think the War Department would give instructions to their local representative to make this investigation of the whole river situation?

Mr. KOONCE. I do not think there is any doubt about it whatever. Maj. Pope says it is entirely practicable. Of course, it rests with the Secretary of War, and we have to find out what his opinion is before we make any announcement. I do not think, however, there would be any objection to ordering such an investigation in conjunction with Canada.

Mr. TAWNEY. Is there anything in the rules of your bureau that would necessitate the request of the commission going to the Secretary of State prior to the assignment?

Mr. KOONCE. No; I think we can arrange it if Maj. Pope would make a report to the Chief of Engineers, and that it would be acted on in that way.

Mr. TAWNEY. If he were to report that the commission requested him to act in conjunction with an engineer from Canada.

Mr. KOONCE. I think that could be authorized by the Chief of Engineers.

Mr. TAWNEY. It would save time to do it in that way rather than have it go to the Secretary of State.

Mr. KOONCE. I do not think it would be necessary to have it go to the Secretary of State. I think there is no doubt whatever but that the request would be granted by the Chief of Engineers.

Mr. POWELL. I wish to call the attention of counsel to Article VIII of the treaty. This action can only be warranted on our part, I mean the delay and expense, provided that we are of the opinion that one of the ways to get out of this difficulty is this: That we would authorize or approve of the dam as it is, and that one of the conditions is that some quid pro quo for that has to be given to Canada in the other water powers on the stream. If that is not the basis of the understanding, this adjournment is a pure piece of folly. Again, I would ask counsel to look into what the "terms and conditions" mean. I call attention to the words:

The commission shall require, as a condition of its approval thereof, that suitable and adequate provision, approved by it, be made for the protection and indemnity of all interests on the other side of the line, which may be injured thereby.

It is well that counsel on both sides should come prepared with some proposition as to how this indemnity is to be made.

Mr. BAXTER. That refers to the construction of remedial or protective works.

Mr. POWELL. That would strike you at first blush.

Mr. BAXTER. Is that the section you are reading from?

Mr. POWELL. At first blush it would strike you that it had to do with remedial or protective works, but if you look closer into it you will find it is not restricted at all. It says:

In cases involving the elevation of the natural level of waters on either side of the line, as the result of the construction or maintenance on the other side of remedial or protective works or dams or other obstructions in boundary waters, etc.

That is something separate; it is a matter of nice legal construction. I would ask counsel to devote their attention to that. It will help us, and if you have anything to propose it may save us a great deal of trouble and may obviate the necessity of entering into a great deal of evidence.

Mr. WYVELL. You mean with regard to any future works rather than with regard to the present works?

Mr. POWELL. The present works.

Mr. WYVELL. You have the opinion of both sides on record with regard to the present works, and it is that no injury can result.

Mr. POWELL. I do not think you can look at this purely and simply as you would look upon a matter between individual proprietors. Our side has the same interest in it, and you are taking the sovereignty in the water and transmitting it for the development of the other country, and that is a matter which ought to be taken into consideration. Just how far it is an important consideration, it is not for me to say. It may not be worth 5 cents and it may be worth a great deal, but it is a matter to which counsel ought to give consideration.

Mr. KOONCE. I seem to have misconceived the object of this hearing. When this case was first presented to the War Department

by your commission we, of course, prepared a reply to it, in which we called attention to your rules, and called attention to the law, and to the fact that as the construction of these works had never been authorized by the Congress of the United States the plans could not be approved by the War Department. We offered no objection to your amending your rules so as to consider this question. I had supposed that this hearing was for the purpose of determining whether the commission would approve or condemn this proposition to the extent of submitting its recommendation to the Government of the United States—that is, to the Congress of the United States—and to the Parliament of Canada, so that these corporations might go there and secure the legal approval of these constructions. That was my idea; that was the reason I came up here.

Mr. POWELL. You thought we were making a recommendation instead of giving a judgment?

Mr. KOONCE. Yes; but of course your favorable recommendation would be equivalent to approval. I came up for the purpose of presenting the War Department's side of the question, which is wholly that of navigation. I am not familiar with the Dominion laws or the laws of the various Provinces, and the distinction you make between what is the property of the Dominion and what is the property of the Province. In our country all property rights in lands are derived from the State. The United States own no land except such as it buys or such as it had when the Government was formed and which still is a part of the public domain. We claim no property right in the water of the St. Croix River, nor in the shores or bed of the stream; we claim simply that the Federal Government has dominant authority and control over that water for the purpose of navigation. In the case of the St. Marys River, Congress said that all the waters of that river were necessary for the purpose of navigation and commerce, and directed the Secretary of War to purchase and condemn all the land, water-power plants, and property rights of every description in and along the river. We went to work and condemned it and paid for it, and became the lawful possessor of it, just as an individual may be the possessor of the property rights along the St. Croix River in the State of Maine. But that proprietor holds his property along the St. Croix River and his rights in the soil under the waters of the River by virtue of the laws of the State of Maine, not by virtue of the laws of the United States. The United States have nothing to do with that, but if you are going to bring this thing to a conclusion by making a recommendation, or by giving definite approval, we want an opportunity of presenting to you facts bearing on the question whether the construction of these works interferes with navigation at the place where they are built, or affects injuriously navigation below or at any other point.

So far as I know—and I am familiar with the legislation now pending in Congress on the subject of power development—there is no intention on the part of the United States to demand payment for water, in connection with the development of power, except where the Government owns the riparian rights—owns the soil over which the water flows and adjacent upland—so that our only duty in this case is to look after the interests of navigation.

Mr. POWELL. When I suggested that it was not that I had heard a word from anybody. It was simply a suggestion that the water should be divided on certain conditions, and I think it would be a proper thing for them to suggest just what conditions.

Hon. JOHN B. M. BAXTER. From the standpoint of the Province of New Brunswick, I do not assume—and I do not know I should be justified in assuming—that this commission will take any view which would involve the discontinuance of such an important and essential enterprise as the one which has been started.

Mr. POWELL. It would be a shame to do so.

Mr. BAXTER. Of course, it would be an outrage, and one can not conceive the possibility of that. There may be some questions to argue as to the relation between the Province of New Brunswick and the Dominion of Canada, as to rights which appertain to the Province of New Brunswick, but whether it be the Province or whether it be the Dominion I think it all comes to this: That the companies making application to-day, by the fact of making the application, should themselves remove from the field of argument any contention as to whether they are in possession under the terms of this legislation or not. It is they who are in default, and they need remedial assistance from some quarter.

Mr. POWELL. To get out of the hole?

Mr. BAXTER. Yes. The function of this commission is to make some recommendation or to refuse to make a recommendation to the respective Governments. So far as the recommendation to the Canadian Government is concerned, I would assume that that recommendation would be accompanied by well-considered conditions upon which the recommendation should be given.

Mr. POWELL. We do not make a recommendation in this case; we decide; we make an absolute decree.

Mr. BAXTER. It did not strike me in that way.

Mr. POWELL. That is our jurisdiction.

Mr. BAXTER. In ordinary cases?

Mr. POWELL. In this case.

Mr. BAXTER. But it must be augmented by legislation.

Mr. POWELL. That is to complete it.

Mr. BAXTER. And, then, what I am saying is that your order might well be that you approve of the application if the applicants are obligated to do certain things.

Mr. POWELL. Yes.

Mr. BAXTER. That is what I am coming to. These conditions must consist either in what I might call a sharing of the power, which, unless something else appears before the commission than has been given in testimony, would seem to me to be practically impossible, so far as equal share is concerned. I do not think that under present conditions you could carry out the requirements in the treaty. That is to say, that the power got from the river at this particular point, if equally divided, would not leave enough power to sustain the industry which is now established. Some percentage of it might be used, but I do not think it is well to debate that. The question would be this, would it not, whether some compensation should be paid to the Province of New Brunswick for the subtraction from that Province of the opportunity to provide water power or to control

water power, or whether compensation be given by setting apart water-power opportunities of the river to the Dominion of Canada generally, so that they should be developed. There should be an equal division of the water power under the treaty.

I have prepared a memorandum which I submit to the commission, as follows:

MEMORANDUM OF ARGUMENT BEFORE COMMISSION.

This company, by making application, admit that their position is not sanctioned by law. If they claim to be entitled to build their dams without the permission of the commission, then I desire to be heard in argument on that point at a later date. It seems to me that the commission can not consider the possibility of destroying such an important industry as that created by the company, and, therefore, however unlawful the action of the company may have been, it will be necessary to find some method of compensating the country whose rights have been injuriously affected.

It is suggested that if all of the power developed is not required for the use of the company, then the commission should recommend terms upon which ratifying legislation by the Dominion Government might be granted, and such terms should include—

(a) Obligation to use 50 per cent of the power on the New Brunswick side of the river; or

(b) Obligation to supply power up to 50 per cent of total power produced to industries, etc., applying for same on New Brunswick side on terms as to price to be subsequently determined. (It may be that if the statement of the power capable of being developed is correct, that the company may not be able to permit 50 per cent of its power to be used in New Brunswick and leave sufficient to support the present industry; if so, other alternatives must be sought); or

(c) Not to sell or use power for purposes other than the existing mills of the company on the United States side of the river. (The object of this provision is to insure that the company shall not buy, sell, or permit other parties in the United States to use its power, thereby diverting the power from the existing industry.)

If the whole of the power is required by the company, then so long as it is so required:

(a) New Brunswick should have the right to take an equal quantity of power from the river, and no further applications from the United States side should be granted until New Brunswick has done so; or

(b) Company to make compensation to Province of New Brunswick until the company is able to give 50 per cent of its power to industries on the New Brunswick side or to use such 50 per cent itself in New Brunswick.

(c) Not to sell or use power for purposes other than the existing mills of the company on the United States side of the river.

That, it seems to me, ought to be one of the terms in any event; that whatever they are taking now they should only take for the purpose of their mills and should not sell. I do not know that they intend to, but it should be stipulated that they should not sell or divert the power to any other company or any other operation than the one they have undertaken.

Mr. TAWNEY. What do you mean by the suggestion that they are not to sell or use power for purposes other than the existing mills of the company on the United States side of the river?

Mr. BAXTER. They are now using 9,000 horsepower out of the 12,000 developed, and the 3,000 horsepower should be devoted to Canada, if Canada can make use of it. They might possibly be able, by further development, to get the power up to 20,000 or 30,000 horsepower, and if they should do that, I can see that it would relieve the situation.

Mr. KOONCE. Suppose the people on the United States side of the river desired to make a full development of all possibilities of power and the Province of New Brunswick does not make any development at all, are we to be hampered in our development because the people on the other side do not care to go to that expense.

Mr. BAXTER. There may be friction; you may have to compensate us.

Mr. KOONCE. As it is, we only want to use our own one-half.

Mr. BAXTER. That may be all right, but you are using more now.

Mr. POWELL. There is another complication about it, and that is this, that assuming the Canadian right, apart from the individual proprietors, that would be in the undeveloped power. Then comes in, which complicates the question, the large outlay which has been made in developing the power, for which the American side and this company should have credit.

Mr. KOONCE. You can not develop power on the American side without diverting water from the Canadian side, or vice versa.

Mr. WYVELL. I do not think the United States ought to be debarred from using its opportunities for power, but that it should leave to the Canadian brethren equal opportunities for development on their side. That is, we should not take over one-half of the opportunity, but we ought not to be deprived from availing ourselves of our half opportunity.

Mr. POWELL. I understood that principal to run through Mr. Baxter's argument.

Mr. BAXTER. Mr. MacInnes covered my field by stating that in making the application here the companies confess they are in fault. They desired, he pointed out in their petition, the absolute right which the Province of New Brunswick does not admit, but to argue it further would take very considerable time. It would be necessary to go into the deeds which my friend Mr. Cochburn is to send in to the commission; it also would be necessary to make an analysis of the Dominion charter, and it would also be necessary to discuss a number of cases which bear upon the powers of incorporation as they are distributed under the British North America act between the Dominion and the Provinces. As the commission does not intend or expect us to discuss that matter at this sitting, I wish to consider that the argument on this matter is reserved to me until a future hearing.

Mr. POWELL. The argument on the whole case is reserved.

Mr. MIGNAULT. We will require some information that the parties are not able to give us at the present time, information as to the situation on the river with regard to water powers. The case will not be closed until we get that information, and then, of course, we will hear argument on the whole case.

Mr. BAXTER. I entirely concur in the advisability of obtaining that information, but I would deprecate any inference being drawn from obtaining it, such as suggested by Mr. Powell, that the commission in taking that course was deliberately pledging itself to a certain view.

Mr. MIGNAULT. Absolutely no. The position is exactly as if at this hearing I had asked a question of one of the gentlemen present, and he stated he would be able to give me that information to-morrow, and we adjourned until to-morrow to get it.

Mr. BAXTER. That is the way I understand it.

Mr. MIGNAULT. We have adjourned for some length of time, but the position is exactly the same. The case will be only closed when we get the information.

Mr. McINNIS. It is in that view that I offered Mr. Stewart's services on behalf of the Dominion Government. I did not make that offer with any idea of consenting to an order being made, but simply to place the information at the disposal of the commission.

Mr. TAWNEY. I would make a few observations with reference to the future hearing of this matter, and I do it because of the remarks of Judge Koonce in particular and also the remarks of Mr. Baxter, who seemed to think that the hearing on this application would not be final, but would rather be that the commission upon this application would simply make a recommendation to the two Governments. The application is made under Article III. It has been transmitted to us by both Governments. It is, therefore, the duty of the commission to consider and act upon the application in accordance with Article III of the treaty, and under this article our action is final. We may impose any condition that we think proper, subject to the condition that the party obtain the authority from the Government or the Governments within whose jurisdiction the obstruction is to be made. In granting that authority it is competent for the Governments to impose any additional conditions that either Government or both Governments may see fit to make.

In view of the incompleteness of the testimony bearing upon the application and also in view of the accepted suggestion in regard to obtaining further information for the use of the commission, through the aid of competent and suitable officers on both sides of the line, I was going to suggest that all these questions be taken up by the representatives of the parties, the applicants, and the two Governments, and that a full hearing, either by briefs or oral argument, will be had at the semiannual session of the commission to be held at Ottawa on the first Tuesday in October.

If that is satisfactory to the commission, I would move that the further consideration of this case be continued until the semiannual session of the commission at Ottawa, Canada, on the first Tuesday in October, when final arguments will be heard on the application of the companies.

Mr. WYVELL. With the right to submit further testimony?

Mr. TAWNEY. Yes.

Mr. MAGRATH. Do you embody in that a suggestion that the two Governments be asked to allow their experts to make the examination?

Mr. TAWNEY. It was understood that the engineering officers to be selected will make their examination and report on the St. Croix River.

Mr. MAGRATH. I would wish it to be understood that the officers of the companies shall afford all facilities to the engineers to make their examination.

Mr. HOSFORD. On behalf of the company I may say that I will be glad to afford all the facilities at our disposal to the officers sent by the commission.

The commission then adjourned.

INTERNATIONAL JOINT COMMISSION,
Ottawa, Ontario, Tuesday, October 5, 1915.

The International Joint Commission met at Ottawa, Ontario, on Tuesday, October 5, 1915, to further consider the application of the St. Croix Water Power Co. for approval of the diversion of the waters of the St. Croix River, and also the application of the Spragues Falls Manufacturing Co. (Ltd.) for approval of the diversion of the waters of the St. Croix River.

Present: Charles A. Magrath, Obadiah Gardner, Henry A. Powell, James A. Tawney, P. B. Mignault, R. B. Glenn; Lawrence J. Burpee and Whitehead Kluttz, secretaries.

Mr. Magrath presided.

The further hearing of the application for approval of the diversion of the waters of the St. Croix River was resumed.

APPEARANCES.

For Canada: C. S. MacInnes, K. C., counsel; W. J. Stewart, chief hydrographer, department of naval service; W. A. Found, superintendent of fisheries.

For the United States: Manton M. Wyvell, counsel for the United States; George W. Koonce, counsel for the War Department of the United States; Maj. F. A. Pope, Corps of Engineers, representing the War Department of the United States.

For the Commission on Conservation (Canada): James White, deputy minister and assistant to the chairman of the commission.

For the State of Maine: Mr. O. H. Dunbar, assistant attorney general for the State of Maine; Mr. George C. Danforth, representing the public utilities commission.

For the Province of New Brunswick: John B. M. Baxter, K. C., Attorney General.

For the St. Croix Paper Co. and the St. Croix Water Power Co.: George A. Curran, counsellor at law, Calais, Me.; George F. Hardy, engineer; and J. B. Hosford.

For the Spragues Falls Manufacturing Co.: M. N. Cockburn, K. C., of St. Stephen, New Brunswick.

For the St. Croix Water Power Co., the St. Croix Paper Co., and the Spragues Falls Manufacturing Co.; W. N. Tilley, K. C., of Toronto, Ontario.

MR. MAGRATH. We will now take up the applications of the Spragues Falls Manufacturing Co. and the St. Croix Water Power Co. for approval of the diversion of the waters of the St. Croix River. When we had these applications before us in Calais, in June last, it was decided to adjourn the meeting until to-day. Meanwhile, the United States War Department and the naval service of Canada very kindly undertook to assist us by having two of its members, Maj. Pope and Mr. Stewart, make certain investigations for us along the St. Croix River. These gentlemen are here now, and I think it would be in order for them to present any report that they may have prepared.

MR. TILLEY. Before these gentlemen are called, it seems to me we should see the report. We would like to know what it is before the

matter is opened up. I understood these gentlemen were asked to make an independent report, at the instance of the commission, and I understood that the procedure would be that the commission would now ask them to make their report, and then we would be allowed to have copies, and either side would be allowed to present any evidence they desired to offer, but I would not dare to put in the evidence without having seen the report.

Mr. TAWNEY. I think it was at the instance of the commission that these gentlemen prepared their report. They were to undertake the investigation and give us a report. We will call upon them to file their report, and we will consider it.

Mr. KOONCE. The statement made by counsel for the company is undoubtedly correct. We have understood that this investigation made by Maj. Pope and Mr. Stewart was at the request of the commission, and our department at Washington authorized the investigation on that basis, and Maj. Pope is ready to submit his statement to you, if you are ready to receive it.

Maj. F. A. POPE. Our report reads as follows:

OTTAWA, CANADA, October 5, 1915.

The honorable the INTERNATIONAL JOINT COMMISSION,

The United States and Canada.

GENTLEMEN: In compliance with your instructions, we, the undersigned, have the honor to submit the following report on water powers on the St. Croix River, Maine and New Brunswick.

2. At the hearing held before the International Joint Commission at Calais, Me., on June 15, 1915, we were requested by the commission to secure permission from the heads of the departments of our Governments under which we are serving to investigate the water powers on the St. Croix River, and to submit a report thereon to the commission at its annual meeting at Ottawa, Canada, on October 5, 1915. This permission was secured, and an allotment of \$1,000 was made by the two Governments for carrying on the work. One-half of this amount was allotted by the Government of the United States and one-half by the Government of Canada. Having secured permission to act in the matter, we reported the fact to the secretaries of the commission, each to the secretary representing his own government, and received from them written instructions as to the desires of the commission. These instructions are as follows:

Information is desired on the following points:

- (1) The amount of power possible of development at each dam site.
- (2) The amount of power actually developed at each dam site.
- (3) The amount of power still undeveloped at each dam site.
- (4) The owners, private individuals or companies (chartered or incorporated), of all developed powers and their nationalities.
- (5) The possibilities of uniting any of the schemes with a view to better development, taking, of course, the commercial possibilities into view.
- (6) Sites in the river at which power is still undeveloped and extent of such.
- (7) Owners of such undeveloped sites.
- (8) Any further information that will assist the commission in arriving at a solution of the question involved in the diversion of the water of the St. Croix River.

It is to be understood that the commission does not desire any costly surveys or examinations to be made. Recourse is to be had to all available data and only when these fail are rough surveys to be made. The extent of the power in each case is to be only closely enough determined to enable the commission to arrive at some basis for an order for division.

3. In connection with this report attention is respectfully invited to the last paragraph of the written instructions, in which it is stated that no costly surveys or examinations are to be made, and that the extent of the power in each case is to be only closely enough determined to enable the commission to arrive at some basis for an order for division. Neither the amount of funds

allotted for carrying on this work, nor the time allowed for the purpose, was sufficient for making an elaborate or expensive investigation. However, by use of the data available, supplemented by personal investigations, we are prepared to submit a report which should be sufficiently accurate for the purposes of the commission. It should be understood, however, that the figures given in the tables attached to this report and in the report itself are, to a large extent, approximate only, although they give a fair representation of the case and are as accurate as could be obtained without expensive surveys extending over a considerable period of time.

4. This report, as stated in paragraph 3, is largely made from the compilation of information obtained from various sources. This information has, however, been checked up by comparing that received from each source with that received from all other sources and with that secured by our personal investigations. We can, therefore, state that, while some errors undoubtedly appear in this report, none are so large as to lessen its value to the commission. A list of reports, etc., consulted is attached hereto and marked "A."

5. In addition to such individual examinations as the time we could spare would permit, we made a joint examination of the river on August 3, 4, and 5, 1915. During this examination we were accompanied each by an assistant and by representatives of the St. Croix Paper Co., of their consulting engineer, and of the public utilities commission of the State of Maine. The river was examined at this time from Mud Lake to tidewater at Calais, Me. We did not go farther up the river than Mud Lake, as we had sufficient information for our purpose concerning the water power at Forest City, the only one above Mud Lake. A memorandum of this examination is attached hereto and marked "B."

6. In order to assist us in making a study of the water powers, and for the information of the commission, we have prepared a profile of the thread of the stream of the St. Croix River from Lake Chiputneticook (Lake Spednic) to Calais. This profile was prepared from various sources, chiefly from United States Coast and Geodetic Survey. It is as accurate as it could be made from the information at hand, and, as far up the river as Halls Brook, may be considered as giving conditions very closely. Above Halls Brook our data was incomplete, and for this reason this part of the profile was not filled in. A copy of this profile is herewith, marked "C."

7. A gauging station for measuring the flow of the St. Croix River was maintained by the United States Geological Survey, near Woodland, Me., from December, 1902, to December, 1911, when it was abandoned on account of log jams, which interfered so much with the regularity of the flow that the records of the gauge had become of little value. During part of the period when the gauge was in operation the record was interrupted from time to time by various causes, but from 1907 to 1911, inclusive, a continuous record was made. In making this report we have taken the record of flow for these five years as a basis. The rainfall over this region is quite uniform, varying from 44 inches per annum, at Eastport, Me., on the coast south of Calais, to 38 inches per annum in the northern portion of the drainage basin of the river. We have, therefore, assumed for the purpose of this report that the discharge of the river per square mile of drainage basin is the same at all points. This is not strictly accurate, but sufficiently so to serve as a fair basis in comparing the flow at the different points on the river. A table of the discharge of the river at Woodland from 1907 to 1911, inclusive, is attached hereto and marked "D."

8. For the various sources of information available we have prepared a table of water powers on the St. Croix River, giving powers now developed and possible developments. The names of the proprietors of the dams, or sites for dams, and their nationalities have been secured from the records of the State of Maine and the Province of New Brunswick. The drainage areas have been measured from a map prepared for this purpose by the United States Geological Survey and the Public Utilities Commission of the State of Maine. This map is considered the most accurate map available for this purpose. The discharge at any point has been computed by multiplying the area in square miles of the drainage basin above that point by the discharge per square mile at Woodland. All elevations are taken from the profile and existing surveys, supplemented in a few cases by a reconnaissance made with a hand level. The head developed is, for purposes of comparison, given at the maximum in each case, although this condition would occur only when the dams are full. The power

is computed from the discharge and head given in the table, assuming an efficiency of 80 per cent. The possible developments given are based on our best judgment as to the possible combination of existing powers, the heights to which existing dams could be raised, and the heights to which and the locations at which new dams could be built without unreasonable expense in building or unreasonable damage from flowage. An accurate survey might determine that the heights of dams should be increased or diminished somewhat, but not to any great extent. A copy of this table is attached hereto and marked "E."

9. The table referred to in paragraph 8 gives all developed water powers on the river and such other developments as might reasonably be made. Many of these would probably cost too much to develop under present conditions. To make a fairly accurate estimate of cost would require expensive investigations and surveys in each case, and we have not attempted it. It would be still more difficult to determine the commercial value of any development. We have, therefore, given in the table only such developments as might be made under favorable conditions. There are other possible sites for power on the river, but they are such that the cost would be plainly far in excess of the value, and they have therefore not been included in the table.

10. The Union Dam with its present height is capable of developing a power varying from 2,694 horsepower with mean flow and low tide to 423 horsepower with low-water flow and high tide. Only about 600 horsepower is developed by the wheels, and of this about 250 horsepower is used. Any greater development at this point would be difficult, as the head can not be raised more than a foot on account of expensive flowage, and the tail race would not be dredged out on account of expensive rock excavation. The best plan here would be to abandon this site in favor of a site about one-third of a mile farther down the river. At this latter site, which is just above the International Bridge, the river is only about 300 feet wide, with nearly vertical banks. The banks and bottom of the stream are ledge rock. Any development here would be comparatively cheap. With mean flow and low tide 6,737 horsepower could be developed, and with low-water flow and high tide 508 horsepower could be developed. This would be a valuable water power, and, if used as are Woodland and Grand Falls for a pulp mill, the variation in power would not be a serious disadvantage.

11. The Cotton Mill Dam has all the head possible at this site, and the dam is in good condition. With the existing dam 4,940 horsepower could be developed with mean flow and 1,861 horsepower with low-water flow. At present 2,400 horsepower is developed and 1,500 horsepower is used.

12. The Milltown Lower Dam, the Murchie Dam, and Milltown Upper Dam are all close together. None of them completely cross the river, being either wing dams extending out into the river or connecting an island in the river with the shore. All are in bad condition except the Murchie Dam, which is as tight as could be reasonably expected of an old log dam. The Milltown Upper Dam is in particularly bad condition. It is an old dam, rotten in some places and with a variable head. The best development could be made hereby building a dam across the stream a short distance above the upper mills. The length of such a dam would be about 400 feet. The bottom and sides of the stream are ledge rock. The head of this dam could be raised to an elevation of 71 feet. This would overflow a certain amount of swamp land and about 500 feet of the track of the railroad connecting the Canadian Pacific Railroad with the Maine Central Railroad. This track would have to be raised about 3 feet. It is impossible to state just what power is developed by these dams at present. The Milltown Lower Dam develops 25 horsepower, all of which is used, and the Murchie Dam, 850 horsepower, of which 400 horsepower is used. At all these dams together but 725 horsepower is used. With a dam built as proposed, 6,287 horsepower could be developed with mean flow and 2,369 horsepower with low-water flow.

13. The Baring Dam is old and leaky and with an irregular head. The amount of power developed is not known. Only about 200 horsepower is used. By raising the height of the dam to 84 feet a 12-foot head could be developed, giving 2,547 horsepower with mean flow and 960 horsepower with low-water flow. This is the greatest height to which this dam could be raised without flooding out the railroad bridge and wagon bridge just above it and about 2 miles of railroad track. At Baileys Rips there is no development at present. A dam could be built here with a head of about 10 feet without backing water

up to the Woodland Dam. This would give 2,116 horsepower with mean flow and 797 horsepower with low-water flow. A dam would have to be about 450 feet long and would have rock foundation.

The best development would be to build a dam at Baring, flooding out Baileys Rips. Any considerable increase of height in the Baring Dam would, as stated above, result in expensive flowage. By building the new dam above the railroad bridge the two bridges would be saved, and the only expensive damage due to flowage would be to the Maine Central Railroad tracks. It has been estimated that such damage would amount to about \$10,000, and would be about the same for a dam combining the water powers at Baring and Baileys Rips as at Baileys Rips alone. This dam could be given a head of 23 feet without backing water up to the Woodland Dam, and would develop 4,882 horsepower with mean flow, and 1,839 horsepower with low water flow. The bottom and sides of the river at this point are partly ledge rock and partly bowlders and gravel.

14. At Woodland 13,200 horsepower has been developed. Mean flow would give but 9,918 horsepower, and low water flow 3,733 horsepower. As this is a pulp mill, it has been built to develop the greatest possible power, the variation of power not being as serious a disadvantage to a pulp mill as to other industries. All the power available is used.

15. At Grand Falls, 8,000 horsepower has been developed, and provision has been made for one additional turbine to give 4,000 horsepower more. At the present time, about 5,000 horsepower is used. Mean flow would give but 9,882 horsepower, and low water flow 3,723 horsepower. This dam is used for furnishing power by electrical transmission to the pulp mill at Woodland, and is designed to give the greatest possible power for the same reasons as the Woodland Dam.

16. At Canoose Rips a dam could be built with a head of 40 feet, giving 3,130 horsepower with mean flow, and 1,176 horsepower with low water flow. There are no signs of ledge in this vicinity, only bowlders and gravel, and it is probable that considerable excavation would have to be made for the foundation of the dam. The dam would be about 400 feet long, with about 800 to 1,100 feet of embankment in addition thereto. It would flood considerable low land, but this land is covered only by scrubby timber.

17. At Steep Bank, a dam could be built with a head of 40 feet, giving 2,995 horsepower with mean flow, and 1,129 horsepower with low water flow. The same remarks as to the foundation apply here as at Canoose Rips. A dam would have to be about 400 feet long with about 300 feet of embankment in addition thereto. Flowage conditions would be about the same as at Canoose Rips.

18. At Little Falls, 8 feet could be developed at a fairly reasonable expense, giving 572 horsepower with mean flow, and 216 horsepower with low water flow. It would be possible to develop as much as 18 feet at this point, but this would require a great deal of embankment. Such development would give 1,287 horsepower with mean flow, and 485 horsepower with low water flow. Flowage would not be expensive. The foundation of the dam would probably be in ledge rock.

19. At the Shaw Tannery Privilege, just below the railroad bridge, at Vanceboro, there was, at one time, a power developed with 8 feet head. The dam is now in ruins. If this dam were rebuilt and a head of 8 feet developed, it would give 545 horsepower with mean flow, and 205 horsepower with low water flow. The river at this point is narrow, and a dam would not be expensive.

20. At the foot of Lake Chiputneticook, there is a storage dam with about 12 feet head. The dam, as built, would develop 820 horsepower with mean flow, and 309 horsepower with low water flow. The head might be increased by raising the dam, and thereby increasing the storage in the lake. The development would not be expensive.

21. At the foot of Mud Lake, there is a storage dam with about 8 feet head. With full storage in Mud and Chiputneticook Lakes, a head of 37 feet could be obtained at this point. This would give 854 horsepower with mean flow, and 322 horsepower with low water flow. With full storage in Mud Lake and low water in Chiputneticook Lake, a head of 47 feet could be developed, giving 1,084 horsepower with mean flow, and 410 horsepower with low water flow. If the height of the dam at the foot of Lake Chiputneticook were raised, as described in paragraph 20, the head developed by a dam at the foot of Mud

Lake would be reduced. All these developments discussed for Mud Lake would be very expensive.

22. At Forest City, there is a dam at the foot of Grand Lake. This dam was built for storage, and has a head of about 8 feet; 10 feet head could be developed here, giving 233 horsepower with mean flow, and 85 horsepower with low water flow.

23. There is no available power site on the river not now developed which would be as valuable as the Grand Falls development, nor is there any one place where a single development, combining a number of existing developments, could be made that would have as great a value. The sum total of the undeveloped powers in the river is slightly in excess of that at Grand Falls, but as their use would require so many dams, some at remote localities, no such economical result can be expected.

Probably the best combination of powers (whether developed or undeveloped) would be those at Milltown and Baring (including Baileys Rips), where the cost of two new modern developments would probably not greatly exceed that at Grand Falls, and they would be well situated for immediate use.

The power at Grand Falls could have been developed on the Canadian side; the difference in cost between that on the Maine and that on the New Brunswick side can only be determined by accurate survey and careful study, but it is believed that it would not be excessive. The shore on the Canadian side is about 16 feet above the head race of the present dam and the excavation and foundation would be in rock. There would be greater expense by developing on two sides.

The present dam flooded out a small power at Princeton and also the possibility of creating power by erecting a dam across the outlet of the West Branch.

24. The St. Croix River is navigable for ocean-going vessels up to the wharves at Calais and St. Stephen under favorable conditions of tide. The river is now being improved by dredging from the upper steamboat wharf at Calais to deep water at Hills Point. This improvement is being carried on by the Governments of the United States and Canada, and, based upon the importance of the river and the interests which the two countries have in the commerce thereon, 90 per cent of the cost of improvement is borne by the Government of the United States and 10 per cent by the Government of Canada. Navigation above Calais consists solely in the floating of logs and in occasional canoes and power boats. The floating of logs is amply provided for at the existing dam, sluices having been constructed for this purpose. No complaints have been made concerning the matter of handling logs in these sluices, and the provisions therefor are considered ample.

Very respectfully, your obedient servants,

F. A. POPE,

Major, Corps of Engineers, United States Army.

WM. J. STEWART,

Hydrographer, Dept. Naval Service, Hydrographic Survey, Canada.

A.

LIST OF REPORTS, ETC., CONSULTED IN PREPARATION OF REPORT ON WATER POWERS,
ST. CROIX RIVER, MAINE AND NEW BRUNSWICK.

Report of an exploration survey made by William Anson, civil engineer, for the State of Maine. Submitted February 6, 1837.

The Water Power of Maine, by Walter Wells, superintendent, Hydrographic Survey of Maine. Published in 1869.

Water Supply and Irrigation Papers, United States Geological Survey, Nos. 69, 82, 97, 124, 165, 201, 241, 261, 281, 301, 321.

Annual Reports of the Maine State Water Storage Commission for the years 1910, 1911, 1912, and 1913.

Reports on the St. Croix River in the files of United States engineer office, Portland, Me.

United States Coast and Geodetic Surveys along the St. Croix River from the source to the mouth of the river.

Information as to water powers and drainage areas in the files of the public utilities commission, State of Maine.

Information concerning the Grand Falls and Woodland developments furnished by the St. Croix Paper Co. and George F. Hardy, consulting engineer to the company.

Surveys and other investigations made by C. F. Pray, civil and electrical engineer, Calais, Me., and other persons.

Report of hearing before the International Joint Commission, held at Calais, Me., June 15, 1915.

Nineteenth Annual Report of United States Geological Survey, volume 4.

B.

MEMORANDUM OF AND EXAMINATION OF ST. CROIX RIVER, AUG. 3, 4, AND 5, 1915.

Members of party.—Maj. F. A. Pope, Corps of Engineers, United States Army; Mr. Lindsay, assistant; Mr. William J. Stewart, hydrographic office, Canadian naval service; Mr. Charles McGreevy, assistant; Mr. T. T. Whittier, representing Mr. G. P. Hardy, consulting engineer for the St. Croix Paper Co.; Mr. George C. Danforth, assistant engineer, public utilities commission, State of Maine.

August 3, 1915.—Examined power sites at the outlet of Chiputneticook and Mud Lakes. The present dam at the foot of Mud Lake is about 200 feet long and holds about 8 feet of storage. It has two 10-foot gates and is made of timber. To raise the dam 8 feet would necessitate lengthening it about 600 feet. No ledge rock in sight. Only large bowlders. Development could be near the dam or at the carrying place about one-half a mile south of the dam. A canal at this latter place would cross the divide between the lakes, the crest of which is about 15 feet above Mud Lake and about 50 feet above Lake Chiputneticook. The canal would have to be about 1,800 feet long. The expense appears to be prohibitive. The dam at the foot of Lake Chiputneticook gives 12 feet of storage. It is made of timber and has three gates.

At Forest City there is a small development that could be enlarged slightly if the level of Mud Lake is not raised.

August 4, 1915.—Journal of a canoe trip down the St. Croix River:

Time.	Locality.	Drop.	Remarks.
A. M.		<i>Feet.</i>	
6.33.....	Left Vanceboro.....	1½	
6.50.....	Elbow Rips (first pitch).....		Wing dam on island; American shore channel swings to left; low banks.
6.54.....	Elbow Rips (second pitch).....	2	Main banks 15 feet high; small bowlders. New Brunswick bank low; falls on right of island combine the four drops of Elbow Rips in one.
6.56.....	Elbow Rips (third pitch; crooked pitch).....	2	
6.58.....	Elbow Rips (fourth pitch) (Picnic Ground Rips).....	1½	
7.09-7.12....	Mile Rips (first pitch).....	4	Main bank 40 feet high; New Brunswick shore very low at first, but higher lower down.
7.15-7.18....	Mile Rips (second pitch).....	4	
	Porters Meadows.....		2 miles of dead water; shores low.
7.30.....	Trout Brook.....		On left.
7.46.....	Driving Camp.....		
7.47-7.51....	Tunnel Rips (in two pitches).....	4	
7.58.....	Joe Georges Rips.....	2	Rips about ½ mile long; river narrow and shores very low.
		2	Maine shore about 15 feet high; New Brunswick shore low; river turns to right.
8.08.....	Halls Rips (first pitch).....	2	Rips about ½ mile long; both shores low, lower on New Brunswick side.
8.11.....	Halls Rips (second pitch).....	2	
8.23.....	Halls Brook.....		

Time.	Locality.	Drop.	Remarks.
A. M.		<i>Feet.</i>	
8.35.....	Little Falls.....	8	Old wing dam; Maine bank 15 feet high; ledge; New Brunswick bank 4 feet; ledge; ridge on left bank some distance from river; 8 feet could be developed; with long embankment 18 feet.
9.03.....	Left Little Falls.....	.....	Carried canoes over.
9.08.....	Upper Pork Rips.....	2	Maine shore high; New Brunswick shore lower; ledge
9.12.....	Lower Pork Rips.....	2	On island on left bank; quick water at foot of island.
9.14.....	Wing Dam.....	.....
9.17.....	Duck pond.....	.....
.27.....	Cedar Island Rips.....	4	$\frac{1}{2}$ mile long; low shores.
9.32.....	.....	.....	50-foot wing dam on island; quick water at head of island.
.33.....	Tylers Rips.....	3	2 drops; two wing dams on right bank.
9.40.....	Meadow Brook.....	.....	On left.
9.46.....	Scott Brook.....	.....	On right; outlet of Lambert Lake very little flow.
9.52-9.55.....	Albee Rips.....	2	Bank on New Brunswick side; 10 feet on Maine side; rips $\frac{1}{2}$ mile long.
9.56.....	Big Simsquish.....	.....	On right.
10.05.....	Rocky Rips.....	.....	2 drops full of bowlders; carried over.
10.17.....	Left Rocky Rips.....	.....	Wing dam.
10.25.....	Rolf Rolingtier Brook.....	.....	On left.
10.30.....	Steep Bank.....	2	Bank 45 feet high on Maine side; low on New Brunswick side; river about 250 feet wide; dam would have to be about 400 feet long with 300-foot embankment in addition; no rock in sight; all gravel.
10.47.....	Left Steep Bank.....	.....
10.51-10.53.....	Hog Island Rips.....	2	
11.01.....	Meetinghouse Rips.....	3	High bank on Maine side; lower on New Brunswick side.
.....	Little Simsquish.....	.....	On right.
.....	Upper Grass Island.....	.....	Wing dam on left; Tote road on right bank.
11.03.....	Drivers Camp.....	.....	Stopped for lunch.
P. M.			
12.34.....	Left Drivers Camp.....	.....
12.46.....	Elm Brook.....	.....	On right.
12.53.....	Haycock Rips.....	6	$\frac{1}{2}$ mile long; carried over New Brunswick bank high; Maine bank low.
1.04.....	Left Haycock Rips.....	.....
1.15.....	Road to St. Stephen from Loon Bay.....	.....	On left bank 18 miles to St. Stephen.
1.45.....	Foot of Loon Bay.....	.....
1.55.....	Canoose Rips.....	5	Maine bank 50 to 60 feet high; New Brunswick bank low for about 900 to 1,200 feet back; no rock in sight; all bowlders and gravel carried over.
2.40.....	Left Canoose Rips.....	.....	Canoose Stream on left.
2.50.....	Dog Falls.....	4	Maine bank high; carried over.
2.55.....	Left Dog Falls.....	.....
3.01.....	Horse Island Rips.....	1	
3.32.....	Gleasons Point (end of canoe trip).....	.....

August 5, 1915.—Inspected various dams and power sites from Grand Falls down.

Grand Falls.—Two pairs 54-inch wheels. Space provided for one more. Forty-nine-foot head gives 4,000 horsepower each. Dam in good condition and well built. Sluiceway for logs on American side ample.

Woodland.—Four pairs horizontal 42-inch wheels; three pairs horizontal 36-inch wheels; 3,000 horsepower. Grinding wheels give 9,500 horsepower with 47-foot head.

Union Dam.—Two vertical wheels (turbine) rated 12-foot head; 400 horsepower. Never attains this efficiency.

Canadian Cottons (Ltd.).—Three 51-inch vertical wheels; one 48-inch vertical wheel; two 36-inch horizontal wheels (2,400 horsepower on 22-foot head).

None of the other mills have wooden wheels.

1. General Information

Date: _____

Name	Address	City	State
Mr. John Doe	123 Main St.	New York	NY
Mrs. Jane Doe	456 Elm St.	Los Angeles	CA
Mr. Robert Doe	789 Oak St.	Chicago	IL
Mrs. Mary Doe	101 Pine St.	San Francisco	CA
Mr. David Doe	202 Cedar St.	Houston	TX
Mrs. Susan Doe	303 Birch St.	Phoenix	AZ
Mr. James Doe	404 Spruce St.	Dallas	TX
Mrs. Patricia Doe	505 Ash St.	San Diego	CA
Mr. Michael Doe	606 Hickory St.	Austin	TX
Mrs. Elizabeth Doe	707 Walnut St.	Portland	OR
Mr. Christopher Doe	808 Maple St.	Seattle	WA

E.

Water powers on St. Croix River, Maine and New Brunswick.

[The datum plane for all elevations is mean sea level.]

Location.	Proprietor.	Nationality.	Drainage area (square miles).	Discharge (cubic feet per second).		Present power development.						Horse-power used.	Country in which power is—		Possible power development.					Structure.		Remarks.
				Mean.	Low water, lowest monthly average.	Elevation (feet).		Head developed (feet).	Horsepower present dam.		Horse-power developed.		Developed.	Used.	Elevation (feet).		Possible head (feet).	Horsepower.		Material.	When built.	
						Tail race.	Head race.		Mean.	Low water.					Tail race.	Head race.		Mean flow.	Low water flow.			
Union Dam at low water.	F. H. Todd & Sons.	Canadian.	1,470	2,474	932	7	19	12	2,694	1,015	600	280	Canada.	United States and Canada.	—10	20	30	6,737	2,538	Timber.	Previous to 1836.	Electric light and power in Calais and St. Stephen.
Union Dam at high water.																						
Cotton Mill Dam.	Canadian Cottons (Ltd.).	Canadian.	1,470	2,474	932	20	42	22	4,940	1,861	2,400	1,500	Canada.	Canada.	14	20	6	1,347	508	Timber and concrete.	1888 and 1896.	Cotton mill.
Milltown Lower Dam.	H. F. Eaton & Sons, H. McAllister and John Andrews.	American and Canadian.	1,470	2,474	932	44	50	6			28	25	do.	do.						Timber.	1836.	Old grist mill; extends from Canadian shore to island in middle of river.
Murchie Dam.	G. A. Curran.	American.	1,470	2,474	932	43	55	12			850	400	United States.	United States and Canada.						do.	1830.	Calais & St. Stephen Electric Railway and industrial purposes.
Milltown Upper Dam: Franklin Mill.	H. F. Eaton & Sons and G. A. Curran.	do.																	do.	do.	Old grist and saw mill; elevation of head race 63 to 65 feet; head, 6 to 12 feet.	
Grist Mill.	do.	do.													43	71	28	6,287	2,369	do.	do.	Do.
Washington Mill.	do.	do.	1,470	2,474	932							300	United States and Canada.	do.						do.	do.	Do.
Shingle Mill.	do.	do.															do.	Do.				
Shook Mill.	do.	do.															do.	Do.				
Planing Mill.	do.	do.															do.	Do.				
Todd.	do.	do.															do.	Do.				
Canadian Cottons (Ltd.).	Canadian Cottons (Ltd.).	Canadian.																		do.	Do.	
Baring Dam.	Granville Chase Co. and H. F. Eaton & Sons.	American.	1,390	2,339	881							200	United States.	United States.	72	84	12	2,547	960	Timber.	1800 and 1810.	Only a mill site; no power developed.
Balley's Rips.	G. A. Curran.	do.	1,385	2,331	878							0			85	95	10	2,116	797			Only small shingle, planing and saw mills; elevation of head race 78 to 80 feet; head 8 to 10 feet.
Baring and Bailey (combined).			1,370	2,330	881										72	95	23	4,882	1,839			
Woodland Dam.	St. Croix Paper Co.	American.	1,390	2,325	875	98	145	47	9,918	3,733	13,200	Full	United States.	United States.						Concrete.	1905-6.	Pulp mill.
Grand Falls Dam.	do.	do.	1,320	2,222	837	152	201	49	9,882	3,723	8,000	5,000	do.	do.						do.	1912-14.	Electric transmission to Woodland Falls; one extra turbine to be installed giving 4,000 horsepower more.
Canoe Rips.	James Murchie's Sons & Co., St. Croix Paper Co. and Province of New Brunswick.	American and Canadian.	512	862	324							0			213	253	40	3,130	1,176			
Steep Bank.	do.	do.	490	825	311							0										
Little Falls.	do.	do.	468	788	297							0			258	298	40	2,905	1,129			
Vanceboro, Shaw tannery privilege.	St. Croix Paper Co. and Charles Bartlett.	American.	447	751	253							0			317	325	8	545	205	Timber.		Old power; abandoned and dam in ruins.
Vanceboro, foot of Lake Chipmunciecook (Specinic).	St. Croix Log Drivine Corporation.	do.	448	753	284		378					0			366	378	12	820	309	do.		Storage dam; built 12 feet head.
Foot of Mud Lake, full storage in Mud and Chipmunciecook.	St. Croix Paper Co.	do.	151	254	96		417					0			380	417	37	851	322	do.		Storage dam, built 8 feet head.
Forrest City, foot of Grand Lake.	do.	do.	146	245	93		429					0			419	429	10	223	85	do.		Do.
Mouth of West Branch.			674	1,134	427																	
Mouth of East Branch.			644	1,084	408																	
United States geological gauging station, Woodland, Me.			1,420	2,390	900																	

D.

Discharge in cubic feet per second of St. Croix River, Maine and New Brunswick, at United States Geological Survey gauging station, Woodland, Me.

[Area of watershed, 1,420 square miles.]

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean.	Foot-seconds per square mile.
1907.....	1,740	971	1,360	3,120	3,690	4,230	3,440	3,300	3,130	2,470	2,530	2,920	2,830	1.993
1908.....	2,700	1,800	2,200	3,360	5,230	3,590	1,500	1,800	1,500	1,250	1,000	900	2,230	1.570
1909.....	2,330	1,580	2,570	7,440	4,680	2,320	1,960	1,990	4,120	4,390	2,580	2,150	3,180	2.232
1910.....	2,310	2,260	2,680	2,670	2,430	2,640	2,280	1,960	1,990	1,900	1,270	1,350	2,140	1.507
1911.....	1,400	1,510	1,370	3,030	1,850	1,420	1,470	1,410	1,120	977	1,220	2,020	1,570	1.105
Mean.....	2,096	1,624	2,036	3,924	3,776	2,822	2,130	2,092	2,372	2,197	1,720	1,870	2,390	.....
Foot-seconds persquare mile.....	1.476	1.143	1.433	2.763	2.659	1.987	1.500	1.473	1.670	1.547	1.204	1.317	1.683	.....

(These tables are all attached to the report, except the profile, which was too large, and which merely accompanies it.)

Mr. MAGRATH. I suggest that we adjourn and the gentlemen interested be given copies of this report. We will meet again at quarter past 2, which will give them an opportunity to take the matter up before Maj. Pope leaves the city. Of course, we will have Mr. Stewart here all the time, but it is better that any information we desire from the engineers should be obtained while Maj. Pope is here.

Mr. TAWNEY. For my own information, before we adjourn, I would like to ask if you and Mr. Stewart have obtained any information respecting the relative amount of water contributed to the St. Croix River by the West and East Branches?

Mr. POPE. It is in the table; it is not given in the report. The table gives the West Branch, mean discharge 1,134 cubic feet per second, low-water discharge 427 cubic feet per second; that is the West Branch.

Mr. TAWNEY. That is the American side?

Mr. POPE. Yes. The East Branch, which is the International boundary stream, has a mean discharge of 1,084 cubic feet per second and a low-water discharge of 408 cubic feet per second.

Mr. TAWNEY. What is the relative percentage?

Mr. POPE. The West Branch is practically 51 per cent of the flow.

Mr. TAWNEY. And the East Branch is the boundary stream?

Mr. POPE. Yes. The table attached to the report gives all this information.

Mr. MIGNAULT. Are there any tributaries on either side of the line?

Mr. POPE. There are a number of small tributaries which run into the St. Croix—into both branches. We examined only the East Branch, the international boundary stream, and there are a number of small streams which run into that stream.

Mr. POWELL. They are of no consequence in regard to power?

Mr. POPE. No.

Mr. MIGNAULT. But they supply a certain amount of water to the river?

Mr. POPE. Oh, yes.

Mr. MIGNAULT. We have all that information in your report?

Mr. POPE. That is given in the table.

(The commission adjourned until 2.30 p. m.)

AFTER RECESS.

Present: All the commissioners and both secretaries, Mr. Magrath presiding.

Mr. MAGRATH. The engineers are here; if counsel or others desire to ask any questions, they are at liberty to do so.

Mr. TILLEY. I would like to ask Mr. Pope a few questions.

(Maj. F. A. Pope was then recalled.)

Mr. TILLEY. You referred this morning to the possibility of using the river at the point where the Grand Falls Dam was erected for floating logs. As I understand, it is not navigable or floatable for logs in rafts or booms but it is floatable for loose logs?

Mr. POPE. Loose logs; yes.

Mr. TILLEY. In order to make use of it for that purpose the logs would have to go through loose?

Mr. POPE. Yes.

Mr. MIGNAULT. Under natural conditions?

Mr. TILLEY. Under natural conditions of the river at that point?

Mr. POPE. I do not know; but I believe they have always floated logs loosely down that river.

Mr. TILLEY. But at any rate it could not be used for anything more than that going down the river; they would have to be loose to go down the river?

Mr. POPE. As things are now they would have to be loose to go down.

Mr. TILLEY. Can you say from your observation how that would be before the dam was erected?

Mr. POPE. I am not very familiar with what the conditions were before, but I should think that probably they would have to go loose before.

Mr. TILLEY. Then you spoke about the cost of developing this power on the Canadian side. Do I understand that you made any comparison between the cost of developing on the Canadian side as compared with the American side?

Mr. POPE. Well, we did not have the time or the opportunity to work out what the cost would be, but it was largely a question of form of development. If the dam had to be put where it is, it would, in my opinion, be considerably more expensive on the Canadian side. If it could have been put a little farther down the river, I do not believe it would be more expensive, but there was no chance to investigate down below.

Mr. TILLEY. Taking the present location, the cost would be approximately how much more? Can you give an estimate?

Mr. POPE. No; I could not. I do not know how much.

Mr. TILLEY. Would it be a few hundred thousand or a few thousand?

Mr. POPE. Well, I could not say; it would be some thousands more, but how much I have absolutely no data to say.

Mr. TILLEY. Possibly a matter of three hundred thousand?

Mr. POPE. I would not think so; but it must be understood I have no figures to base this on.

Mr. TILLEY. Possibly between two and three hundred thousand; would that be your estimate?

Mr. POPE. I could not estimate it.

Mr. TILLEY. That is driving you a little too far?

Mr. POPE. I think it would be less, but I could not say.

Mr. TILLEY. But from the standpoint of erecting the dam and making the storage basin there there can not be any doubt as to the proper side of the river, having regard to all conditions, to put the dam on; that is, if there were no questions of Dominion and United States at all, the proper side would be the American side?

Mr. POPE. You mean for the power house and the power canal?

Mr. TILLEY. Yes.

Mr. POPE. You said dam. From what I saw I would say the American side was the more natural side to put it, but a thorough investigation, with examination of condition of soil, might determine otherwise. My examination as to that was, of course, more or less superficial.

Mr. TILLEY. You spoke of some possible powers below. What do you say to the cost per horsepower of developing those as compared with the proposition at Grand Falls?

Mr. POPE. A close comparison would, of course, require a more thorough examination as to conditions, but I believe, barring any question of cost of purchase simply as an engineering problem and development, that it would be more apt to be less than more.

Mr. TILLEY. That is the powers below?

Mr. POPE. That is the development of the powers below, but that also is a question largely of opinion; that is, not based on a thorough examination, and very possibly another engineer might feel that there would be some difference the other way.

Mr. TILLEY. There is a possibility of room for difference of opinion?

Mr. POPE. Yes; particularly considering that there was not sufficient investigation made to determine it at all closely.

Mr. TILLEY. Do you know what the length of that canal is on the Canadian side?

Mr. POPE. I do not know.

Mr. TILLEY. I am told it is shown on the plan filed. That is all I have to ask.

Mr. MAGRATH. Does anyone else wish to ask Mr. Pope any question?

Mr. JAMES WHITE. I wish to ask some questions. First, with respect to the back water; your estimates of the horsepower, I see, are based in your report upon the gauge readings on the St. Croix, which was in use from December, 1902, to December, 1911, when it was abandoned on account of log jams which interfered so much with the regularity of the flow that the records of the gauge had become of little value, but from 1907 to 1911 a continuous record was made,

and you used in making your estimates the gauge reading from 1907 to 1911?

Mr. POPE. Yes.

Mr. WHITE. I assume there were log jams between 1907 and 1911 on the river?

Mr. POPE. I presume there were. I most naturally would expect that.

Mr. WHITE. What correction would you make for the back waters created by the log jams?

Mr. POPE. I took, as agreed in advance between Mr. Stewart and myself, the only record that existed; that of the Geological Survey as it was given and for the continuous period of years, knowing that on the average it would become correct, but as to any particular day there would be log jams it would not be.

Mr. WHITE. But would it be correct?

Mr. POPE. If you get the total amount of flow throughout the period and give the average flow, it would come pretty close to being correct.

Mr. WHITE. If you had a season of log jams, unduly raising that gauge, and nominally increasing the flow, but at the same time actually decreasing the flow, would it be correct?

Mr. POPE. If the gauge were properly attended to, as I presume it was, and they had a continuous record made, on certain days it would show less because less water would go by, and certain days more would go by, on account of the jams. It would not show the natural flow of the river for those days, that could not be determined, but when you would take it for a period of a whole year it would come very close to showing the average flow.

Mr. WHITE. To my mind, the result of any particular log jam is necessarily to falsify the record by apparently increasing the flow when the flow is actually decreasing.

Mr. POPE. For that particular time; but if this gauge showed the flow at the time it was taken and a record was made for each day in the year, the average would be very close.

Mr. WHITE. I would imagine that the contrary would be the case; that the result would be that the total for the year would be unduly high, and that that was probably the reason it was abandoned.

Mr. POPE. It was so irregular at the end that they abandoned these gauging stations; so we took it through the period. They considered it satisfactory enough to publish it. There was no other record; and as a comparison between powers, whatever difference of flow we took, it would be equally fair. Had we abandoned the amount of flow entirely and based our tables on drainage area and head, the comparison would be just as fair, though we had not considered flow at all; but we took the best record of flow that existed and one that was considered fairly satisfactory.

Mr. WHITE. I see you say it would be very difficult to determine the commercial value of any development?

Mr. POPE. It would be for men who were doing the work themselves; when they already had more work than the normal man is capable of doing, and were doing, in addition to their own time of working, a great deal of work on nights and Sundays, and had three

months to do it, and \$500—it would be extremely difficult for any man to come to anywhere near the actual commercial value of the proposition.

Mr. WHITE. With regard to the Union Dam, I see you say any development would be comparatively cheap. With mean flow and low tide 6,737 horsepower could be developed. Why with mean flow and low tide?

Mr. POPE. The report explains that variation in power is not as serious for pulp mills as for other powers, and in the report it says this is for a pulp mill. That variation would not be so serious as for other sorts of development—I forget the exact words used.

Mr. WHITE. The thing that struck me was that the St. Croix people objected to a variation in flow at their own dam of about four to one, and here we have thirteen to one?

Mr. POPE. I do not know anything about the St. Croix people. I do not represent them. I represent no one, except a desire to give the commission a fair report; but the fact remains as an illustration that at both Woodland and Grand Falls they provide for the development of very much more power than the mean flow would show, which showed that they considered it was not insurmountable to use varying power anywhere they desired to have it; but it is plain from their action they did overdevelop for the sake of using variable power and for the sake of making use of the water at certain periods. At Woodland 13,200 horsepower has been developed. Mean flow would give but 9,918 horsepower and low-water flow 3,733 horsepower.

Mr. WHITE. And they are objecting; they say this variation is much too great, and therefore they put in the Grand Falls Dam to do away with that variation?

Mr. POPE. I know nothing as to their variation.

Mr. WHITE. Then there is no data in your table about the Spednic Falls.

Mr. POPE. No.

Mr. WHITE. Presumably because the Grand Falls Dam drowns it out?

Mr. POPE. Principally that, and, from what we can see or hear of it, it did not seem to be worth consideration. But it is conceivable that you could put some development there, although we do not believe so.

Mr. WHITE. Do you know how much the present head at Spednic Falls is, assuming the Grand Falls Dam to be full? Is it not drowned out?

Mr. POPE. It is drowned out at the present time.

Mr. WHITE. I understand there is a small fall left?

Mr. POPE. I do not know, but I think it is practically eliminated at the present time.

Mr. WHITE. In your list of powers we have the Canoose Rips and Steep Bank, with 40 feet head; and then there is the Shaw tannery privilege, 8 feet, and Mud Lake, 8 feet, and Forest City, 8 feet. Would you consider a dam with 8 feet head was of any particular value?

Mr. POPE. A dam of 8 feet head would ordinarily be of little value. The commission asked that we report on all the powers that, under favorable conditions, might be of value. A dam at the Shaw tan-

nery privilege might be of advantage, because there is a town in Canada not far off that probably could use the power. The dam at the foot of Lake Chiputneticook—the power could be developed there that would have the same value as the Shaw tannery privilege—it would be probably better if that dam could be used for storage, but it still could be developed.

Mr. WHITE. So that really above the Grand Falls there are two large heads with very doubtful foundations, and the remainder of the powers are of very little value?

Mr. POPE. Well, I do not believe that I could fairly make general statements.

Mr. WHITE. When I am saying that, that is the inference I draw from your report.

Mr. POPE. Your inference is not so very far off, but it might create a wrong impression. The Canoose Rips and Steep Bank are rather remote, and the foundations are questionable. Of course they could get quite a bit of power, but I do not think that they would be commercially valuable at the present time. They might under certain conditions; the two at Vanceboro would perhaps be for development, because of the chances of selling power at Macadam; Forest City would be very local and perhaps of questionable value.

Mr. WHITE. In the journal of your canoe trip you show some small heads; were those measured with a hand level?

Mr. POPE. They were measured with a hand level or estimated. For that extreme upper part that we had not an accurate survey of they were all minor developments, but on the lower part it is doubtful if you could get any more head on the river than we have given, and you could develop the head we have given. There is a gap between Halls Brook and Lake Spednic on which we have no accurate survey.

Mr. WHITE. I find Halls Brook is not marked on the map.

Mr. POPE. It is marked on the profile. The map is not part of the report—that is simply given to the commission to look at. The profile is the report.

Mr. WHITE. Where is Halls Brook? Is it halfway between Grand Falls and Vanceboro, or where?

Mr. POPE. It is nearer Vanceboro; that is my recollection. It is not very far down from Vanceboro—oh, yes; it is much closer to Grand Falls, but it is between the Little Falls and Vanceboro.

Mr. MIGNAULT. How far, about, from Grand Falls?

Mr. POPE. I could only tell you that by looking at the map. Mr. Stewart could tell you from the map.

Mr. STEWART. About 12 or 13 miles below Vanceboro.

Mr. MIGNAULT. And how many miles from Grand Falls?

Mr. STEWART. About 15 or 16.

Mr. TILLEY. Might I just ask you a question or two, arising out of that? You say that an 8-foot head would not be a very useful power, speaking commercially, not worth considering; something to that effect?

Mr. POPE. No; I did not intend to say that; I think I said it would not be a very valuable head, but on account of the closeness of the place to which power might be transmitted it very likely could be developed. To do that would require an investigation as to mar-

kets and cost of development which I did not have time to make and did not feel called upon to make.

Mr. TILLEY. What do you say, speaking as to these powers along the St. Croix River—take at Grand Falls, for instance—as to the practicability or possibility of making two separate developments of them, dividing them? Is it not rather a small proposition to talk about dividing?

Mr. POPE. You mean putting part on the Canadian side and part on the American?

Mr. TILLEY. Yes.

Mr. POPE. Well, I have never investigated, but I believe that if I had money to invest I would certainly not put it in any such proposition.

Mr. TILLEY. That is your way of saying it is not a very feasible thing?

Mr. POPE. I do not consider it feasible as a commercial proposition; but I might be wrong, and a valuable market for power might make that worth doing; but as power is at the St. Croix at present I should not consider it as a place where I would care to invest money or advise anyone else to.

Mr. TILLEY. I think in your figures you gave this morning you spoke of 51 per cent of the flow of water coming from the west branch and 49 per cent from the east branch?

Mr. POPE. Yes.

Mr. TILLEY. If the east branch took 50 per cent from each side of the boundary line, that would make the water from the Maine side about 75 per cent of the whole body of water in the St. Croix River after the two branches joined?

Mr. POPE. Yes.

Mr. TILLEY. And what would you say as to the fairness of dividing the east branch about relatively 50 per cent to each? Would that be giving too much to Canada or too much to Maine?

Mr. POPE. I do not quite understand. Do you ask me to decide the question as to whether—

Mr. TILLEY. As to the watershed on each side.

Mr. POPE. I believe that perhaps a little more than half comes from the Maine side, but I have not the maps on which the drainage areas were worked out with me.

Mr. TILLEY. You think at least half comes from the American side?

Mr. POPE. I would believe that to be it.

Mr. GARDNER. You are speaking of the east branch entirely?

Mr. POPE. I believe it would be safe to say that at least half, or perhaps more, comes from the Maine side. The west branch is, of course, all in Maine.

Mr. TAWNEY. That is, one half of the drainage area of the east branch is in Canada and the other half in the United States?

Mr. POPE. I think perhaps a little more on the American side, but I have not the maps and could not say.

Mr. TAWNEY. You are speaking of the drainage area of the east branch alone?

Mr. POPE. Yes.

Mr. WYVELL. Do you mean the drainage area as such, or do you mean one-half of the water of the east branch comes from the drainage area of Maine? Do you mean half the drainage area is in Maine, or does one-half of the water come from there?

Mr. POPE. That is practically the same thing, because the character of the soil and the conditions of timber areas are about the same on the two sides, and the mean annual rainfall is closely the same, and, as far as anyone could determine, the proportion of flow is the same as the proportion of drainage area.

Mr. MIGNAULT. The precipitation on both sides would be the same, approximately?

Mr. POPE. Yes; throughout that whole basin the conditions are much the same.

Mr. MIGNAULT. The same conditions prevail on both sides?

Mr. POPE. Yes.

Mr. TILLEY. Did you look into the title under which any of these other dams were put up? Did you examine into the history of the structure to see how it was authorized?

Mr. MAGRATH. Have you totaled the amount of power that is being beneficially used on each side of the line below Grand Falls Dam and not including that power?

Mr. POPE. We have not totaled them. We have given each power, but we have not made a total.

Mr. MIGNAULT. It would be very easy to make a total?

Mr. POPE. Yes; anyone can do it in a very few minutes from the table.

Mr. MIGNAULT. Perhaps you could give us the figures?

Mr. POPE. They are right here on the profile.

Mr. MIGNAULT. It is just a question of adding them up?

Mr. POPE. Yes.

Mr. STEWART. I have them made out. On the Canadian side the amount of horsepower is between 1,975 and 2,875. Taking the low-water flow would mean, for low water, 1,975 horsepower, and for the mean flow it would be 2,875 horsepower.

Mr. MIGNAULT. On the American side?

Mr. STEWART. On the United States side 4,570 horsepower at low water and 10,750 horsepower at mean water; that includes the Woodland power.

Mr. MIGNAULT. Does that include Grand Falls?

Mr. STEWART. No. Including Grand falls, it would aggregate 8,290 horsepower at low water and at mean 20,650 horsepower. That includes Grand Falls.

Mr. KOONCE. As I look upon this proposition, it is simply one of squaring it with the terms of this treaty. St. Croix River is the boundary stream between the United States and Canada, and under the terms of the treaty both high contracting parties have mutual rights to the use of the water. I have read the report closely, and I imagine it contains all the data that your commission asks for with reference to the power already developed along the river on both sides, and the power that is capable of being developed, and advantageously developed, and that which can not be developed; in

fact, all the data you desire in that respect are in that report. I want to call your attention, Maj. Pope, to this provision of the treaty:

The high contracting parties shall have, each on its own side of the boundary, equal and similar rights in the use of the waters hereinbefore defined as boundary waters.

That is the St. Croix River, without any regard to its tributaries or drainage area; take the river as it stands to-day. You have examined carefully the water-power development of the St. Croix River?

Mr. POPE. Yes.

Mr. KOONCE. Is there anything in that development that, in your judgment as an engineer, will prevent the carrying out of this provision of the treaty, that there shall be equal and similar rights in the use of the water of that section of the St. Croix River? Is there anything in the existing plant and water-power development of this company that would prevent a reasonable fulfilment of this provision of the treaty?

Mr. POPE. Well, that is a matter I have not thought I would be called upon to speak about, but I can answer that in a minute——

Mr. KOONCE. Supposing the commission approve this project?

Mr. POPE. I can answer that in a minute, but I want to combine a few figures before I attempt to answer it, because I had not anticipated it. I would like to have the question read to me.

(Question read.)

Mr. POPE. I do not believe that the existence of the Grand Falls Dam or its construction would prevent a fairly reasonable allowance of development to equalize it; that is to say, there is, as a commercial proposition, power enough, undeveloped, which, if developed on the Canadian side, would practically offset the Grand Falls Dam.

Mr. KOONCE. And in your judgment, should the commission approve——

Mr. POPE. This is, of course, aside from the question who owns the power, and means the flowing out of existing powers. I refer to the combinations given in paragraph 23 of the report, where we speak of combining the powers at Milltown and Baring. I believe those combinations would come very near to offsetting the one at Grand Falls, if they were developed on the Canadian side.

Mr. MIGNAULT. If the whole of the river were diverted on the Canadian side?

Mr. POPE. At those two places where we proposed improving them. This might be a few hundred horsepower one way or the other, but it would come very close to offsetting it.

Mr. MIGNAULT. The act does not contemplate that there shall be a division of water power at every point?

Mr. POPE. No.

Mr. KOONCE. Now, referring to the St. Marys River at Sault Ste. Marie, that is the outlet for Lake Superior; all the waters of Lake Superior go through that river. The amount of fall between Lake Superior and Lake Huron is 22 feet, and 19 feet of that fall is right at the Sault. There can be no other place on that river where water

power can be developed. It would be impossible to develop power except at the rapids; consequently, in that case, it would be proper the division of the water should come at that point; but in the St. Croix River there are numerous places along this section of the river which have been examined by Mr. Pope and Mr. Stewart where water power can be developed, and I desire to ask Maj. Pope whether, in his judgment, should the commission approve of this application of the St. Croix Water Power Co., such approval would prevent a compliance with this provision of the treaty as to an equal division of water?

Mr. TAWNEY. That is, if the commission would approve it unconditionally?

Mr. KOONCE. Yes; whether that would prevent a compliance with, or be a violation of, this particular provision of the treaty?

Mr. POWELL. Boiling it down, it is simply this: If we grant this application, would the American side have more than one-half of the reasonable available power?

Mr. POPE. I would have to ask a question, to be sure. Do you mean to include Woodland pulp mills, all the old ones, or those at Grand Falls?

Mr. POWELL. Yes; all of them.

Mr. POPE. They would not, I believe—I am quite sure, though I have not figured it up—they would not have half the power of the river.

Mr. MIGNAULT. Whom do you mean by “they”?

Mr. POPE. The Canadian side. My answer should be, perhaps, explained. By combining those powers below, ignoring the powers above Grand Falls, which are in some cases rather questionable, leaving them out, taking those below Grand Falls, it is possible to increase the development below Grand Falls to a greater extent than the Grand Falls development, but that would not give Canada one-half the total power of the river, including those dams that have been built within the last—all the dams that have ever been built; but if we ignore the dams built before the commission was organized, then we can offset Grand Falls, but we can not offset dams that were built before.

Mr. POWELL. There are two factors in the problem. We have discussed one. The next question would be the question of expense of development?

Mr. POPE. I have considered that in answering the question. I mean as development, that would be profitable. I believe the development below would be fully as valuable; I think there would be a chance of their being more valuable.

Mr. POWELL. Being near the city?

Mr. POPE. Being nearer the city, they would be more valuable than Grand Falls.

Mr. POWELL. The other factor is the cost of making actual this potential power?

Mr. POPE. That is what I meant in speaking as to being valuable—the comparison of cost with the value of the power produced.

Mr. POWELL. The cost compared with the results?

Mr. POPE. That would have to be determined by a careful investigation which we could not make; but that is my opinion, based upon an examination, as I have made it.

Mr. TAWNEY. You speak of excluding the power resulting from certain dams constructed before the signing of this treaty. What dams do you refer to?

Mr. POPE. The dams made before the treaty consist of all those on the river, except Grand Falls. They were all made prior to the organization of the commission, as I understand it; and I understood from the statements of the commission before that they were particularly interested in the division after the time of the organization of the commission.

Mr. JAMES WHITE. The report of the engineers refers to the cost of modern developments:

Probably the best combination of powers (whether developed or undeveloped) would be those at Milltown and Baring (including Baileys Rips), where the cost of modern improvements would probably not greatly exceed that at Grand Falls, and they would be well situated for immediate use.

I would like to know whether, in making that estimate of cost, compensation would have to be paid to the present owners of the water powers?

Mr. POPE. That was based on that supposition, that those powers would have to be bought from the present owners—exactly on the same basis as Grand Falls—that they had to pay, and pay for everything they get.

Mr. WHITE. I understood the actual cost of the acquiring of the power at Grand Falls was comparatively small, but they had to pay damages for the flowing over the drowned lands.

Mr. POPE. Yes; that is true; but the flowage below, except for the dams they flooded out, would be very little. The cost for the lower developments, aside from the cost of construction, would be in buying out these powers. At Grand Falls that is offset by the expensive flowage, which would not occur below.

Mr. MIGNAULT. I understood the organizers of the Grand Falls development bought out the lands that were subject to flowage?

Mr. TILLEY. Yes.

Mr. POPE. They are supposed to own all that land now.

Mr. WHITE. The cost of acquiring those lands that were drowned out would be very, very small in comparison with the cost of acquiring the developed water powers there?

Mr. POPE. That was considered in making out the report, and that paragraph was very carefully considered by the two of us, and we felt thoroughly justified in putting it in the way we did—as not greatly in excess, or slightly in excess—and we figured out the cost of buying out existing developments.

Mr. WHITE. Did you make any inquiries as to the cost?

Mr. POPE. I did not, personally; I believe Mr. Stewart did.

Mr. WHITE. Furnished by the owners of the powers?

Mr. STEWART. Well, by some people—certain parties interested there.

Mr. BAXTER. Do I understand clearly that you are basing your opinion upon the powers that can be developed, the cost of the works

which are necessary to develop at the dams, which would have to be paid for overflowing, and the compensation which would have to be paid the proprietors for the acquisition of the site for the dam and the extended works?

Mr. POPE. Those are all considered in that answer.

Mr. BAXTER. If you are basing your opinion on this, would you kindly lay before the commission a detailed statement of the elements of your answer?

Mr. POPE. No, I can not; and the commission has expressly stated that they did not expect me to do things of that kind. If the commission will allow five or ten thousand dollars and give me a year in which to do it I will endeavor to do it, but they expressly stated they expected no such thing.

Mr. BAXTER. Without that your opinion, I take it, would be rather in the nature of an offhand one?

Mr. POPE. No; it is not in the nature of an offhand one. It is the result of such investigation and the weighing of conditions as men would make after having studied out an engineering proposition, but it is not based on any actual basis of calculation of getting at cost nor can it be, because we can not say in advance what those people would demand.

Mr. BAXTER. That is one element?

Mr. POPE. We can not say that.

Mr. BAXTER. And that element remains totally uncertain?

Mr. POPE. Totally uncertain, and, furthermore, I do not believe it has any bearing on the case, as to what they might hold them up for, because we were not called upon to decide questions as to what private individuals might want to demand of anyone who had to buy from them, or whether any development on the river paid too much or too little for the property they bought.

Mr. BAXTER. I quite appreciate the fact that perhaps you are not called upon to do that, and, therefore, I assume you did not do it?

Mr. POPE. Only so far as Mr. Stewart was able to investigate in the time that he spent on the river last summer. I do not know just how long he spent or how fully he could go into that particular factor of what the people might ask for their property.

Mr. BAXTER. May I understand this: Whether Mr. Stewart has indicated to you his opinion, conjecture, or information, whatever it may be, with reference to the probable cost of acquiring these plants?

Mr. MIGNAULT. Better ask Mr. Stewart.

(Question read.)

Mr. POPE. I think he gave me roughly the cost of buying them. I know that it was his opinion, independently of mine, and first suggested by him to me, that this could be developed as stated in the paragraph, but you would have to ask him as to those—how closely he came to those figures.

Mr. BAXTER. Can I take it in this way; that your opinion on this subject is wholly based upon the fact that Mr. Stewart gave you the information?

Mr. POPE. No.

Mr. BAXTER. Will you kindly place before the commission the elements which led you to the conclusion which has been furnished by yourself?

Mr. POPE. The elements that led me to that conclusion were first: I found that an increase of power about equal to that at Grand Falls would be developed there.

Mr. BAXTER. Now, give me that in detail, so that I may know just what you took into consideration and just what your opinion was based on.

Mr. POPE. First, you want how I arrived at the power. I want to answer each question separately. You can jump from question to question quicker than I can jump from answer to answer. The first question is, How I arrived at the basis of the power——

Mr. BAXTER. I want to get something as specific as I can, and I would like to have you tell us, in arriving at your conclusion, what power you took into consideration and how much power, in your judgment, could be usefully developed on each side? I would like to have it on record.

Mr. POPE. That is given in the report.

Mr. BAXTER. We have that in the joint report of you and Mr. Stewart?

Mr. POPE. I can make one amendment to the report, although it really covers it; the report which we gave you to read a while ago is based on theoretical horsepower that could be developed. Apparently a certain percentage of those only would be developed. I have figured each waterpower on the river on exactly the same basis, and the relative powers are based entirely on the question of the amount of flow past a certain point and the head that could be developed. In the table attached to that report we give what the theoretical horsepower would be with 80 per cent efficiency for the flow at the point and the head.

Mr. BAXTER. You treat it on the same basis?

Mr. POPE. Yes; all on the same basis.

Mr. BAXTER. You were explaining a few minutes ago that you had taken high water and the low water in the river as the possible fall?

Mr. POPE. What is that?

Mr. BAXTER. Have you, in making the theoretical calculation, assumed the fall to be the difference of level between high water in the river and low water?

Mr. POPE. No; no power would ever be assumed that way.

Mr. BAXTER. You made allowance for the fall of the river and made a dam to take up the fall; the question of high and low water could not enter into it.

Mr. MIGNAULT. You made that calculation at a low stage of the water?

Mr. POPE. Yes, and at mean flow; we also calculated at high-water flow, but did not submit it.

Mr. POWELL. In your calculation you took into account, where necessary, the effect of that flow?

Mr. POPE. Yes; we avoided the flowing out of any one power by another, and left sufficient distance between the head race of any power and the tail race of another power to prevent backing up. Each of those could be developed without interfering with the power above.

Mr. BAXTER. In the water power available on the Canadian side you included the Union Dam?

Mr. POPE. No; in my statement I included the other two. I said they were very nearly the same. If you included the Union Dam, you would make it more.

Mr. BAXTER. More favorable to Canada?

Mr. POPE. Yes. The answer was based on the two developments proposed at Baring and Milltown.

Mr. BAXTER. And so far as those two are concerned we have the data in your joint report?

Mr. POPE. Yes; as to all of them.

Mr. BAXTER. As to the cost of development, the construction of dams, or any other works that might be necessary to obtain practical utility in the flow, did you make any figures, however rough, as to those?

Mr. POPE. As to cost?

Mr. BAXTER. Yes.

Mr. POPE. No; my basis of comparison was this: I knew the cost of the dam at Grand Falls and all the component parts of that development. I had similar estimates given by engineers years ago, before this came up, for development at certain heads at Baring, and I based, as a rough basis, the cost of building dams, comparing their lengths and heights and general plan of foundation, on the cost of those two. I could not and did not expect to give the cost of survey or detailed estimates.

Mr. BAXTER. I would like to get on the records of the commission such calculations, or such figures, as you used in arriving at this result, no matter upon what it is based. I would like to have the separate details; you may not be able to give it to me at this moment?

Mr. POPE. I can not give you the details; they are contained in probably 40 volumes of books which I have read over for this thing, 30 or 40, I don't know, and in a few dozen maps and in various projects which I have read up, and to enumerate the list, if I had to do it here, would take quite a while, but I can not give it, and it would take me probably two months to work out the details, if I had to do it, and it has taken me that time to do it.

Mr. BAXTER. So far as we stand to-day, we simply get the results of your mental operation, without any definite information as to any set facts which you state?

Mr. POPE. I can not agree with that statement.

Mr. BAXTER. Distinguish the statement, and give us as much as you can of the elements which made up these amounts.

Mr. POPE. May I ask if you have read the report carefully which we submitted?

Mr. BAXTER. Which one?

Mr. POPE. This report.

Mr. BAXTER. I read about half of it.

Mr. POPE. I would like to ask the commission, if Mr. Baxter could not be called upon to read my report before taking up any more of my time asking questions which have been previously answered. I think I have a right to ask that the gentleman who cross-examines me knows something of the subject on which he cross-examines me.

Mr. BAXTER. If you want to postpone the investigation until I have qualified as a hydraulic engineer, I am afraid, perhaps, we may reach eternity.

Mr. POPE. I would like to make a suggestion as to time. There are other witnesses to give evidence and other people who wish to ask questions. They might ask those questions while Mr. Baxter is going over the report, and he can then ask the questions, having a better basis on which to ask them.

Mr. BAXTER. I am sure the commission will appreciate the sarcasm as much as I can.

Mr. KOONCE. If the commission is satisfied with this report, and it contains the data asked for by the commission, I do not think counsel should enter into details as to whether the report is satisfactory or not.

Mr. BAXTER. With all due deference, I think not. This gentleman comes as a witness comes before any tribunal, and he expresses his opinion in the best of good faith, probably, and has given the matter a good deal of study, but that does not make it impertinent or unnecessary should it become to my interest to try to ascertain the details which he has obtained to assist him in coming to this conclusion.

Mr. KOONCE. The attack of counsel should be directed to the report and to the commission, and he should be acquainted with the facts therein stated.

Mr. POPE. I do not feel attacked or that there is any reflection in Mr. Baxter's questions, only he has been asking so many questions that have been already answered that he is taking up time, and I think that he should read the report and then ask the questions, so that he can do it without having to ask questions which have been answered in the report. I feel he has a perfect right to ask the questions, but I wanted him to know definitely the basis on which he asks them before asking them.

Mr. MIGNAULT. He is seeking to obtain from you, as far as you can give them, the data on which you base your statement that on the Canadian side the two powers you mentioned will give similar results, or about similar results, to the development at Grand Falls; and I think he can ask you these questions and you can answer, if you can.

Mr. POPE. I feel perfectly ready to answer, but I found we were going around in a circle and things which had been put in the report had been asked, and I thought if he read the report it would save time.

Mr. MIGNAULT. Perhaps if you could give the portion of the report where it contains the information he asks for, it would save time.

Mr. BAXTER. I was going to ask him to indicate the reference in the report.

Mr. POPE. I have mentioned them several times in answer to your questions.

Mr. BAXTER. Will you mention them once more?

Mr. POPE. No; I can not, because I have not taken the trouble to remember each separate question and each separate answer.

Mr. POWELL. Go ahead with your questions.

Mr. BAXTER. Take the eleventh paragraph:

11. The Cotton Mill Dam has all the head possible at this site, and the dam is in good condition. With the existing dam 4,940 horsepower could be developed with mean flow and 1,861 horsepower with low-water flow. At present 2,400 horsepower is developed and 1,500 horsepower is used.

The Cotton Mill Dam gives power on the Canadian side of the river, does it?

Mr. POPE. Yes.

Mr. POWELL. In taking into consideration the available or theoretical power which might be used on the Canadian side of the river, at what figure did you put the power of the Cotton Mill Dam?

Mr. POPE. In comparing this power——

Mr. POWELL. Answer it in one short answer in figures. I have 4,940, 1,861, and 2,400. Which did you use?

Mr. POPE. In comparison, I used the 4,940 and the 1,861 in comparing it with others as to the possible power developed——

Mr. POWELL. In using them both, what did it result in?

Mr. POPE. It resulted in the figures given here.

Mr. POWELL. In both?

Mr. POPE. Certainly.

Mr. POWELL. Did you add them together?

Mr. POPE. No. They are put down separately; it is a comparison of powers, and they are given in the table.

Mr. POWELL. Did you make two tables of figures, one the mean flow and another the low flow?

Mr. POPE. I made both comparisons on the same table.

Mr. POWELL. Did you use both in getting at the theoretical power which is now developed on the American side, and which can possibly be developed on the Canadian side?

Mr. POPE. I used either one, but separately. I compared the different powers, using the low-water flow, and compared them, using the mean-water flow.

Mr. POWELL. Did you obtain any different result in using your table of mean flow and low-water flow?

Mr. POPE. No; because they are both worked on the same basis of flow for the river.

Mr. POWELL. Is there the same relative difference between mean flow and low-water flow in each power?

Mr. POPE. Same proportion of difference.

Mr. POWELL. I think you said to me that, in making up the cost of the dams which you had built, you had data as to the existing dams on the river?

Mr. POPE. I had the estimates of cost of Grand Falls furnished me by their engineers.

Mr. POWELL. I would just like to have that, the cost of the dam at Grand Falls from high-water mark on the Canadian side to high-water mark on the American side.

Mr. POPE. This data was furnished me by the consulting engineer of the St. Croix Paper Co.; I would like to ask the commission and you if I have permission to give the information.

Mr. TILLEY. Any information obtained from the company you are quite at liberty to give.

Mr. STEWART. It is already in the evidence.

Mr. POPE. It is in the evidence of the previous hearing. The dam alone is \$200,000.

Mr. BAXTER. Can you say whether the middle bed of the river is coincident with the middle of the dam, or whether that line runs more to the Canadian or more to the American side?

Mr. POPE. I can not say.

Mr. BAXTER. Could you, by reference to any plan?

Mr. POPE. If I had the plans I had when I made the report, I could.

Mr. HARDY. There is more on the Canadian side.

Mr. BAXTER. Can anyone tell us approximately as to whether it is two-thirds?

Mr. HARDY. About two-thirds.

Mr. GLENN. I would like to ask this question: These gentlemen have filed an application asking us to approve the construction of that dam; so far as I know, no other party, except the Province of New Brunswick, has put in any objection to it being ratified?

Mr. BAXTER. Quite correct.

Mr. GLENN. What is the line of the opposition? Is it because you do not get enough power, or do not want the dam constructed? You must have some idea about it, and I want it direct; get right down to what it is.

Mr. BAXTER. I think that is a very valuable suggestion.

Mr. GLENN. We could save time if we knew your position.

Mr. TAWNEY. Did you not make a statement as to that matter before the commission at Calais?

Mr. BAXTER. I might suggest two possible ways for the commission to deal with it, but I have a little more to say, and it will take a few minutes to say it, and I will act on Gov. Glenn's suggestion.

I may say the position New Brunswick takes, I think, is very largely independent of what may come out on the examination of witnesses. The examination must necessarily have reference entirely to the position which would be taken by this commission as to whether there is or is not an improper diversion of the water; but the position of New Brunswick can not necessarily be so much concerned with the diversion of the water as with another phase of the matter. The position of the Province is simply this: That under the law of New Brunswick, as enunciated by the Supreme Court of Canada, the applicant company is maintaining one-half or two-thirds of its dam upon land which is not the property of the company, but which is absolutely the property of the Province of New Brunswick, for which that Province has not been compensated, and with respect to which the Province of New Brunswick has never been asked to grant any rights.

Mr. MIGNAULT. What decision of the supreme court do you refer to?

Mr. BAXTER. I propose to cite to the commission one case, and one case only. In the Province of New Brunswick there has been no decision involving the right to the land from the middle thread of the river to the boundary of the grant or to the bank of the river. In Ontario there have been several decisions bearing on this point, and one of those cases went on appeal to the Supreme Court of Canada, which laid down the law, not in terms applicable to the Province of Ontario alone, but of general application. That decision is binding upon the courts of New Brunswick, and is, I believe, an absolutely correct exposition of the law throughout the Dominion of Canada, except possibly with reference to Quebec, as to which I am not competent to speak. The case is *Barthel v. Scotten* (24 Sup. Ct. Repts.,

367), decided in 1895, Chief Justice Strong delivered the judgment, Justices Taschereau and Sedgewick concurring, Justices Gwynne and King dissenting. In that case they did not discuss the particular point which I make, but it was held with absolute fairness that the ordinary rule that a grant in nonnavigable water, bounded by the bank of the stream or the shore, would extend *ad medium filum aquae*, does not apply where the water is an international boundary, and also in certain other cases. The effect is this, therefore, that apart altogether from the language of the grants to which the applicant company is a successor in title—apart altogether from the construction of the language of those grants—it is impossible that there could have passed by those grants any right to the soil between the bank and the middle of the river, or, in other words, the soil upon which has been superimposed two-thirds of this dam. That is a matter, I take it, that is within the power of the Dominion Parliament to legislate about. The Dominion Parliament can give authority to stop the waters of a navigable river, or to use those waters; for that purpose to erect dams. But the Dominion Parliament is not competent to transfer the soil rights of any Province, and, so far as the legislation incorporating this company is concerned those soil rights have never been parted with and are still in the Province of New Brunswick. The company, therefore, stands in precisely the same situation as if they had built a portion of their dam above high-water mark on the lands of some private proprietor without making compensation and without exercising expropriatory powers.

Mr. GLENN. Did New Brunswick grant a charter?

Mr. BAXTER. No. New Brunswick was not applied to; and from this aspect of the case, I would suggest that it is advisable that the company should apply to the Province of New Brunswick to confirm it in the possession of this portion of land of which it has taken possession, without, perhaps, being fully aware of the law bearing on the subject, and it seems to me that if the Province of New Brunswick is applied to, that there should be no difficulty in having fair and reasonable terms imposed upon the company, which would not injure it, and yet at the same time would affirm the right of the Province to control this strip of territory, and would prevent future assertions of right unaccompanied with actual right itself.

Mr. TAWNEY. I would like to ask you what side of the St. Croix River is within the jurisdiction of the Dominion of Canada?

Mr. BAXTER. That depends in what sense you are speaking.

Mr. TAWNEY. In the sense it is used in Article III of the treaty.

Mr. BAXTER. It is in the jurisdiction of the Parliament of Canada, in so far as the Federal Parliament has jurisdiction over all subjects assigned to it by section 91 of the British North America act, but no further.

Mr. TAWNEY. The logic of that position would be that under this treaty no one could obtain a right to obstruct or divert the waters of the St. Croix River on the Canadian side.

Mr. BAXTER. No. I do not speak of obtaining a right to obstruct the water. So far as navigation is concerned, you can not obtain a right to obstruct navigation without the assent of the Dominion Parliament; but getting the right of the Dominion Parliament to obstruct the right of navigation does not permit the company, or the person authorized, to obstruct the right, to impose his dam or

other works upon the land either belonging to New Brunswick or to private proprietors. There is no expropriatory power given, or, if there is, none has been exercised, and it is essential that the company should deal with all the parties having rights. It has failed to deal with one of the parties.

Mr. MIGNAULT. In stating the principle which you have stated, on the authority of the decision of the Supreme Court of Canada, do you consider the position here is exactly similar to the position which was considered by the Supreme Court of Canada in the case which you have cited?

Mr. BAXTER. I think absolutely, so far as New Brunswick is concerned.

Mr. MIGNAULT. Now, with regard to the St. Croix River at this point, do you consider it as being a navigable or floatable river, under the decision of the Privy Council?

Mr. BAXTER. It is not navigable; it is only floatable under the circumstances which have been explained.

Mr. MIGNAULT. You are familiar with the Maclaren case in the Privy Council?

Mr. BAXTER. Yes.

Mr. MIGNAULT. Do you consider this river is a floatable stream, within the definition given by the Privy Council in the Maclaren case?

Mr. BAXTER. I rather think in that case that the floatability depended entirely on the view of floatability expressed in Quebec. I do not think it is applicable in New Brunswick. This is a non-navigable river and if this water were in the interior of the Province of New Brunswick, and a man obtained a grant of land bounded by the shore, under the law of New Brunswick he would be entitled to own to the middle of that stream, but the Supreme Court of Canada has decided that where such water forms a provincial boundary, or rather, an international boundary, that there the ordinary principle is set aside, and that the grant does not carry to the middle of the water of the river.

Mr. MIGNAULT. In the case which you cite the river was a navigable river?

Mr. BAXTER. I think not.

Mr. MIGNAULT. What river was it?

Mr. BAXTER. I have not the name before me.

Mr. POWELL. Did that decision not go on the application of some old French law to the bed of streams?

Mr. BAXTER. Not at all.

Mr. POWELL. But we have really nothing to do with that question. In order to legalize the diversion of waters in what we have been calling international streams—a term which is rather unfortunate, but we will use it—several things are necessary. In the first place, all the powers that are given by the legislative or other power in the two countries must be given. In the second place, it is necessary to get our indorsation of the scheme. Our indorsation of the scheme is in no way dependent upon the other; it is a fact that must stand solely by itself. Then if we grant authority or approve of the diversion—that is the term used in the treaty—that does not forestall the Province of New Brunswick or the private proprietor from applying, by injunction, to prevent it being done, because all the powers

necessary to the legalization of the undertaking have not been obtained.

Mr. BAXTER. Having these facts before you, and having the law before you, will you, by your solemn judgment, approve of the act of a company which comes before you in the position of a wrongdoer? I think this tribunal will hesitate and will wait until the applicant shows that it is in the position of having a rightful title.

Mr. POWELL. No; I think that is a matter outside of us altogether.

Mr. BAXTER. It ought not to be, in my judgment. You are not bound to approve.

Mr. POWELL. No; that is true.

Mr. BAXTER. You will allow me to say the Province of New Brunswick does not, as far as I am concerned, appear before this tribunal in any position of real hostility to the company. There is no reason why we should be vindictive. I do not think that term should be imported into it at all, but it is necessary we should retain what rights we had, and it would be distinctly improper, if you will pardon me for using the term, for this tribunal to sanction the act of any company which, on the face of it, is doing something it is not legally authorized to do. You will be authorizing the diversion of water, not merely as between Canada and the United States, but you will be authorizing the diversion of water by a company maintaining a structure for that purpose in defiance of the law of the Dominion of Canada.

Mr. POWELL. Let me read the section—

Mr. BAXTER. It is apart from the section. If the commission wants to put itself in that position, I will not argue further.

Mr. POWELL. We will take all the responsibility for that. There is no one of those acts that is a condition precedent to the other; there is no logical sequence; there is no chronological order about the matter. Article III reads as follows:

It is agreed that, in addition to the uses, obstructions and diversions heretofore permitted or hereafter provided for by special agreement between the parties hereto, no further uses or obstructions or diversions, whether temporary or permanent, of boundary waters on either side of the line, affecting the natural level or flow of boundary waters on the other side of the line, shall be made except by authority of the United States or the Dominion of Canada.

That, to my mind, includes the whole of the legal powers or authorities which are necessary in order to give proprietary rights.

Mr. BAXTER. You would take it the Dominion of Canada there does not mean the Parliament of the Dominion of Canada, but it means whatever legal powers or authorities are necessary to put it in that position, and if the Province of Quebec is a necessary party to that, you must have it.

Mr. POWELL. Certainly. The article continues:

Within their respective jurisdictions and with the approval as hereinbefore provided, of a joint commission, to be known as the International Joint Commission.

That is, they may come to us first or go to some other place. Of course, we might be entering upon something that is a fiasco. They have not got the approval of the United States, but we are going ahead, and if we approve of it, and the United States Congress does not approve of it, it falls to the ground. I am with you to this extent: That our deciding this is simply the creation of one fact which is necessary to legalize this work. We have nothing to do with these

other people. If they do not go to the full extent and get it legalized from every source that is necessary, any person who is wronged can move by way of injunction and stop it. We do not forestall the courts.

Mr. GLENN. You say you are not hostile to this proposition or not objecting to it. Is your contention that before we can ratify this that these parties ought to go to the Province of New Brunswick and get those matters adjusted, and come to us and say, "We have adjusted the matter in New Brunswick and ask you to ratify it"?

Mr. BAXTER. With one amendment, you say, "Before we can ratify"; if you will say "Before we should ratify," I am in entire concurrence. I am not denying the power of the commission, but I do say, considering the very great standing, the high position that this commission occupies, really dealing with two nations, that it will be wise policy to require of all applicants here that they come in every way properly equipped before you give that sanction which you undoubtedly have the power to give. It would be much better that this application should stand over until these parties come to the Province of New Brunswick and put themselves in a correct position.

Mr. TAWNEY. As a matter of fact, under the treaty, it is not material whether the applicant applies to this commission for approval of that which he proposes to do or has done before obtaining authority from the Government within whose jurisdiction the obstruction is to be erected under the treaty.

Mr. BAXTER. Would you consider it was the best discharge of your functions to hear an application from a person who came, to put an extreme case, as a mere speculator? That is not this case.

Mr. TAWNEY. The application comes to the commission through one or both of the Governments. It does not come to the commission through the individual alone. You must apply, first, to the Government and the Government refers the application to the commission for its consideration, under the treaty. Here is a work that has already been constructed. True, it may be an illegal obstruction of an international river. Now, if we can approve before authority has been granted of a work that is in contemplation, why should there be any more impropriety in approving a work that has already been constructed, except that approval must be made on condition that the authority under the treaty be obtained before the approval becomes effective. Our approval will not become effective unless full authority for maintaining and operating the obstruction is granted by the Government in whose jurisdiction it exists.

Mr. BAXTER. If you put that rider on your approval it would be all right.

Mr. TAWNEY. That is the only way it could be done.

Mr. BAXTER. I look on the functions of this commission as so great that they are more than judicial—they are really diplomatic—and if this commission fulfills its highest purpose it will do a great deal in the way of avoiding those matters of difference which otherwise might arise between two great bodies. If there were no condition attached to your approval, trouble might arise; I do not say it would arise with this particular company; I am inclined to think it would not, but I can easily conceive of a case arising where the Province, by the maintenance of its jurisdiction, might have by force to remove

the dam which was built. Naturally there would be a protest from the other side of the water at such a great industry being interfered with. Nevertheless, if they were not willing to have an adjustment of terms, it might be the only remedy, and therefore it is of the highest importance that every applicant here should go to every party who might have to be dealt with to validate its title.

Mr. TAWNEY. Under Article VIII of this treaty, the commission is at liberty to attach any conditions to its order which may be necessary to protect people on either side of the line.

Mr. BAXTER. I had great difficulty on the previous occasion in outlining any conditions which ought to be attached. I have suggested a number of impositions upon the company—

Mr. POWELL. That is where the hard point is.

Mr. BAXTER. And none of them seemed to be entirely satisfactory. The Province does not intend to come here seeking for something in a punitive sense, and, since considering the matter further, I think if it is left to the Province and this company to arrange some conditions, that the Province can be compensated for the thing the Province is interested in, the thing the Province owns—the use of its land.

As to the division of the water, as to whether Canada gets half or less than half by reason of the action, that is a matter for this tribunal; and if it is shown that, by reason of the action of this company, one-half of the water can not be got in future for the use of the Canadian side, it would be a matter for the commission to impose terms with respect to that. But the proprietorship of the land and the use of the water are two different things. I am simply speaking for New Brunswick. The other matter is before the commission.

Mr. TAWNEY. Would there be any objection on the part of New Brunswick to an order approving of the maintenance and operation of the obstruction as now constructed, subject, however, to the condition that full authority be obtained from the Dominion of Canada or the Province of New Brunswick? You would have to use the words "Dominion of Canada." We have not any authority under the treaty to go to any other body. Would New Brunswick have any objection to an order of that kind—that full authority for the maintenance and operation of the structure as now existing be obtained from the proper authority?

Mr. TILLEY. If it has not already been done?

Mr. BAXTER. The objection is that by taking such a course you would rather facilitate the company in the position of a wrongdoer to maintain that position.

Mr. WYVELL. Do you not think you are going a little too far when you say "wrongdoer"?

Mr. BAXTER. No—well, I will put it in another way. "Without title and without right."

Mr. WYVELL. "Trespassing" or "illegally" would be better.

Mr. TILLEY. Would that not be a solution of the whole difficulty if the approval is given, specially reserving to New Brunswick the contention it makes? That would bring it to an end very quickly. We are satisfied that that condition should be imposed, if he will take it that way.

Mr. BAXTER. Will Mr. Tilley say, on behalf of the company, now whether he contends the company has legal authority to do what it has done?

Mr. TILLEY. Oh, yes; we contend that. We contend we own the whole bed of the stream on which that dam is built.

Mr. MIGNAULT. I understand the position of New Brunswick that it claims that it owns the soil on which two-thirds of the dam is constructed.

Mr. BAXTER. Precisely.

Mr. MIGNAULT. And that is all you claim. Your whole case is that, without purchasing these lands, the company has built its dam on the lands which you say belonged to the Province of New Brunswick.

Mr. BAXTER. Precisely.

Mr. POWELL. Have you ever looked into the grants there, as to where they are bounded?

Mr. BAXTER. They are bounded by the bed of the stream, according to the decision in *Barthel v. Scotten*, and you cannot get any authority overruling that case.

Mr. MIGNAULT. New Brunswick claims its lands have been taken without proper authority?

Mr. BAXTER. Yes; and we ask that no authority be given until New Brunswick is placed in a proper position.

Mr. MIGNAULT. I understand your position is that your lands have been taken without leave?

Mr. BAXTER. Yes.

Mr. POWELL. In respect of the point I raised, your position is that we absolutely have no right to give our approval, that it is a condition subsequent—not using it in the technical sense—

Mr. BAXTER. I may answer it before you ask it. I say you ought not to.

Mr. POWELL. They have made the construction, and it is now a matter of policy?

Mr. BAXTER. Your jurisdiction is immense.

Mr. POWELL. We have already decided, as a matter of policy in this matter, that we will go ahead, without getting the authority of Congress.

Mr. MIGNAULT. Not in this particular case?

Mr. POWELL. Yes.

Mr. MIGNAULT. They did not reach it last session, and, therefore, it was not put through.

Mr. TAWNEY. I would like to ask the attorney general to explain more fully the ground on which he claims it would be poor policy for this commission to approve and make its order on condition, in advance—

Mr. BAXTER. You strengthen the position of the applicant.

Mr. TAWNEY. How would it strengthen the position of the applicant in obtaining legislative authority for the maintenance of the dam?

Mr. BAXTER. If you say to them: "You must go to the Province first, before our order is operative," then they would have to obtain the consent of the Province—

Mr. POWELL. We should put it that you must have proper authority.

Mr. TILLEY. Without expressing any opinion as to whether we have it now or not.

Mr. POWELL. Yes.

Mr. BAXTER. If you put it in that way——

Mr. POWELL. That saves you.

Mr. BAXTER. No; but if our rights are denied subsequently, I can see the possibility of very unpleasant complications between this company and New Brunswick that I am sure, personally, we would be very glad to avoid.

Mr. TILLEY. So would we, and we will all be very fair.

Mr. BAXTER. Because I want to say, with a little emphasis, that the Province is determined to get its rights.

Mr. TAWNEY. Without New Brunswick getting its rights, as determined by the courts of Canada, this project can not be realized.

Mr. BAXTER. But it is there.

Mr. TAWNEY. Well, it can be removed. I would like to hear the objection New Brunswick would have to an order conditional upon their obtaining proper authority for the maintenance and operation of the structure within the jurisdiction of both countries. I can not see what objection there would be to that, according to your argument.

Mr. GLENN. They would have to get authority from Congress and New Brunswick also.

Mr. BAXTER. I should have thought it would be necessary for the tribunal to require the consent of Congress.

Mr. TAWNEY. No; we are not doing that; but our approval is subject to their obtaining that authority.

Mr. BAXTER. Will you put it, "Subject to obtaining the authority of the Legislature of New Brunswick"?

Mr. TAWNEY. It is a matter for the commission to determine whether that is necessary; but the condition would cover every authority, or all proper authority, for the maintenance and operation of every structure, whether it is in the State of Maine or in Canada. I can not see what objection either the Government or the Province would have to the order of approval, if the company, in order to fully legalize the obstruction, must go to the proper authorities or the proper governmental subdivision over here and obtain proper authority to maintain the obstruction.

Mr. MAGRATH. I am disposed to agree with the view expressed by Mr. Baxter in this respect: I think it is proper that applicants before this commission should have proper legislative authority, and then for us to follow it up by our action. But, in view of the fact that the Governments have submitted this case to us, it appears to me there is nothing for us to do but to proceed with the application; and, so far as I am concerned, I do not see that there is any particular force in putting in this particular rider, because we can not legalize the structure. We make the order of approval, and it is not legal until the proper legal authority is obtained.

Mr. BAXTER. It is proper for the commission to report to the Government that it is not advisable to proceed further with the application until the company comes and shows its title to the property on which it is to maintain its works. It is a little different from the approval of the Congress of the United States.

Mr. GLENN. Does Maine not occupy to the United States a similar position to that occupied by New Brunswick to the Dominion of Canada?

Mr. BAXTER. I do not profess to be an expert on the law of New Brunswick, and I will certainly decline to pose as an expert in United States law.

Mr. MIGNAULT. I think Mr. Baxter has fully stated his position. I should not like to express any opinion one way or the other, but we have had Mr. Baxter's statement, and we can go on with the hearing.

Mr. TAWNEY. Will Mr. Stewart be called?

Mr. TILLEY. I do not think we need ask Mr. Stewart anything with regard to this matter. We have covered the ground with Maj. Pope. Unless Mr. Baxter wishes to ask Mr. Stewart any questions, we do not.

Mr. TAWNEY. Mr. Stewart represented the Canadian Government in this matter, and I would like to have the record show whether Mr. Stewart approves of the conclusions arrived at by Maj. Pope.

TESTIMONY OF WILLIAM J. STEWART.

(W. J. Stewart, chief hydrographer of the Dominion of Canada, recalled:)

Mr. MAGRATH. You have heard the evidence given by Maj. Pope?

Mr. STEWART. Yes.

Mr. MAGRATH. Have you anything to say about it?

Mr. STEWART. No. I am perfectly satisfied with every statement Maj. Pope made. After two days' consultation with Maj. Pope we signed that report.

Mr. TAWNEY. You heard his testimony?

Mr. STEWART. Yes.

Mr. TAWNEY. And you have no dissent from any conclusion he offered based upon your investigation and report?

Mr. STEWART. No.

Mr. TILLEY. The question arises as to the form of the Crown grant of the property along the Canadian side of the river, and I understand that Mr. Baxter has looked into all the titles. Have you looked into our deeds?

Mr. BAXTER. In a general way. The extracts are filed here.

Mr. TILLEY. I think it is conceded the river is the boundary of our property?

Mr. BAXTER. There is one here, typical of many of them. The description reads:

To the eastern side of the River St. Croix, before mentioned, and thence along the shore down the stream in a southerly direction, to the place of beginning.

That is the Hill deed.

Mr. TILLEY. I think I had better put in a copy of the deed of the land on which the Canadian end of the dam stands. There is the original grant from the Crown, the Hill deed:

Beginning at a stake standing on the eastern side of the River St. Croix and at the northwestern angle of lot No. 7, in C. N. Smith's survey, of lots on the east side of the above-mentioned River St. Croix. * * *

To the eastern side of the River St. Croix before mentioned, and thence on the shore down the stream in a southerly direction to the place of beginning, containing 375 acres more or less, and also particularly described and marked on a plot or plan of survey hereto annexed. * * *

Mr. POWELL. Do you remember the exact words of the late privy council case in 1914?

Mr. TILLEY. That is the Maclaren case—the Quebec case?

Mr. POWELL. They held it went to the center.

Mr. MIGNAULT. They held it was nonnavigable and nonfloatable.

Mr. BAXTER. It was not an international boundary.

Mr. POWELL. There is nothing peculiar about an international stream—

Mr. TILLEY. We can agree, can we not, that this description of lands that we have along the Canadian side of the river carries the thread of the stream, unless that is to be excluded because this is an international stream?

Mr. BAXTER. No; I think not, because nothing will presume against the Crown and its grant.

Mr. TILLEY. Oh, yes. I thought that was the only point you made; that is, this description would carry to the middle, were it not for the fact that the Crown is the grantor and this is an international stream.

Mr. BAXTER. If this were between subjects, it undoubtedly would.

Mr. MIGNAULT. Do you make any difference between a grant of land bounded by a river and a grant of land running along the bank of a river?

Mr. TILLEY. No; I think not. I think the whole question now is the land that has riparian rights. If the conveyance is a conveyance of property that has a riparian right on the water, then it carries the thread of the stream.

Mr. MIGNAULT. As a part of the riparian rights the right to the middle of the stream would go as a necessary part of the grant.

Mr. GLENN. You say it makes no difference whether it is international water or not?

Mr. TILLEY. No. There must be some place that is reached on the St. Croix River where it becomes of such magnitude that a conveyance would go to the middle of that stream. The only question is, are we at that point on the river; I think beyond question we are. We are away above navigability except for loose logs.

My learned friend referred to a case on the matter of description. I refer to 1915 Appeal Cases, the decision of the privy council; attorney general of southern Nigeria *v.* Holt (p. 599). There the privy council laid down the rule, as applied both to descriptions of land that border on streets as well as on rivers, because the rule is the same in England. At page 612 the judgment reads:

The whole of this question as applicable to lands de facto fronting a river, but described by measurements which excluded its bed, was anxiously discussed in the case of *City of London v. Central London Railway*, 1913 Appeal Cases, 364. The law with reference to river and street boundaries of property was gathered together, and it need no longer be a matter of doubt that the operation of the rule of adding to the ownership of riparian lands the property of the soil ad medium filum, is not interfered with on account of specific or scheduled measurement of the land, a delineation of coloring on a plan, which measurement, delineation, or coloring does not in fact include any part of the bed of the river or of the street.

Mr. MIGNAULT. Is there not a British Columbia case?

Mr. TILLEY. I do not think it goes as far as this. This is the last word on the subject on that point. The judgment continues:

Similarly, in their lordships' opinion, properties scheduled or specifically measured, but, in fact, abutting on the seashore, are not excluded from the operation of the rule which adds to riparian lands the increment which is caused by natural and gradual accretion from the sea.

Then, at page 610:

Here the properties were each and all treated in description as being bounded in fact by the sea. The expression may be in one case the river Lagos, in another the lagoon, and so on, but a sea frontage was that which was meant, and in their lordships' opinion was sufficiently expressed. They were riparian proprietors.

And that is the test. The lease intended the person getting the conveyance will have the river as one of his boundaries, where the description says the bank or the shore.

Mr. MIGNAULT. You say it is included in riparian rights?

Mr. POWELL. In other words, if you get your land down to the water, nothing stops it.

Mr. TILLEY. I refer to *Maclaren v. The Attorney General of Quebec* (1914 Appeal Cases, 258), where the description was similar. They started from a post on the bank, then away inland, and back to a post upstream; thence along the bank of the river, following its sinuosities; and so on, and it was held the description carried to the middle of the stream. That was an English case. There, as here, it was looked upon as settled that the township lots were surveyed right down to the river, and this plan shows that the lines run right down to the river and stop.

Mr. POWELL. Where is the point of beginning on that?

Mr. TILLEY. According to the description in the plan attached to the Crown grant, the line runs right down to the water.

Mr. MIGNAULT. There is nothing between the land described and the water?

Mr. TILLEY. No.

Mr. MIGNAULT. It is in lateral contact with the water, and therefore it carries riparian rights.

Mr. POWELL. I had occasion to look into this matter very fully some time ago.

Mr. TILLEY. I file the deed, so that we will have the description before us.

Mr. POWELL. This is the only one that affects us.

Mr. TILLEY. Yes. The same language applies all along the river bank. We have acquired the properties, so that we are the absolute owners, and the other descriptions are referred to in a letter from the Crown lands department, of New Brunswick, to Mr. Cockburn, in which the writer stated that he had looked into all the titles. This is a certificate from the Crown lands department, dated September 29, 1915.

Mr. MIGNAULT. I presume you have a plan which accompanied the original grant?

Mr. TILLEY. It is attached to it.

Mr. MIGNAULT. And is part of the grant?

Mr. TILLEY. Yes.

Mr. MIGNAULT. And that plan shows that the land is in actual contact with the water?

Mr. TILLEY. Yes; and the river is the boundary.

Mr. MIGNAULT. And there is no line of limitation between the river and the land?

Mr. TILLEY. No.

TESTIMONY OF GEORGE A. CURRAN.

(George A. Curran, having been recalled, testified as follows:)

Mr. TILLEY. Can you speak as to the authority under which other dams along the St. Croix River were erected?

Mr. CURRAN. I have made a very careful search, and I find no legislation on the American side in relation to any of the dams; and I found that in 1820, when the State was shut off from Massachusetts, down to quite recently, there were charters granted by the State of Maine for toll bridges on the river, but none of the dams had any charters; they were under what we call the Mill act, an act the legislature passed.

Mr. TILLEY. I refer to that act because it may be of some importance. I was not able to see the last revision of the statutes, but it is chapter 92 of the revised statutes of Maine, 1883. That has remained the same since?

Mr. CURRAN. Yes.

Mr. TILLEY. Section 1 reads:

Any man may, on his own land, erect and maintain a water mill and dams to raise water for working it upon and across any stream not navigable, or, for the purpose of propelling mills or machinery, may cut a canal and erect walls and embankments upon his own land, not exceeding 1 mile in length, and thereby divert from its natural channel the water of any stream not navigable, upon the terms and conditions and subject to the regulations hereinafter expressed.

Those conditions are that any person who is prejudicially affected and whose property is injured has the right to come into court and demand compensation or get an order that the dam shall not be as high as it is.

Mr. TILLEY. So that you say the dams there are erected under this statute of Maine?

Mr. CURRAN. Yes.

Mr. TILLEY. And this statute authorizes the diversion for a length not more than a mile?

Mr. CURRAN. Yes.

Mr. TILLEY. This dam is about half a mile?

Mr. CURRAN. About 2,400 feet. I know it was within the statutory length.

Mr. TILLEY. How long have those dams existed? How far back can we carry this idea of erecting dams across the St. Croix?

Mr. CURRAN. The first dam was built at what we call Milltown, and that was along about 1790-99.

Mr. TILLEY. Where was that?

Mr. CURRAN. I should say 10 miles below Grand Falls, approximately.

Mr. TILLEY. That dam has been there since about 1790?

Mr. CURRAN. Yes; somewhere between 1790 and 1800; I do not remember the exact dates. There is scarcely a dam on the river that is not older than I am.

Mr. TILLEY. How old are you?

Mr. CURRAN. I am 66. I do not think there is a dam there that is much less than 80 years old, along the St. Croix.

Mr. TILLEY. How many are there?

Mr. CURRAN. There is the Union Dam—oh, I have got to except that Cotton Mill Dam—and then there is Milltown Lower Dam and

Milltown Upper Dam and the Baring Dam. There used to be a dam at Princeton above this, which was pulled out.

Mr. TILLEY. How far below Grand Falls have there been dams in this river away back about 1800?

Mr. CURRAN. All the way down to tide water—that is, about 10 miles or so—tide water reaches the Union Dam.

Mr. TILLEY. I think you said in your evidence before that the land on the American side, on the Maine side, was all acquired by the company?

Mr. CURRAN. Yes.

Mr. TILLEY. And the land is exclusively on lands owned by the company?

Mr. CURRAN. Yes; I have personal knowledge of that, because I think I made all the deeds, or examined them, and a good part of the plans.

Mr. TILLEY. And I think no question is raised by the State of Maine but that the title to the boundary lines along the stream runs to the center of the stream?

Mr. CURRAN. That is settled over and over again; there is no question about that.

Mr. TILLEY. So that the inhabitants of the State of Maine who own properties along the stream own from the middle down to what point in the stream?

Mr. CURRAN. Down to salt water, where the actual war vessels come and go.

Mr. MIGNAULT. Is there any distinction here between international boundary and the middle of the stream? Is the international boundary along the middle of the stream?

Mr. CURRAN. It is the center of the channel, is it not?

Mr. MIGNAULT. How does that apply here? Would the international boundary run here to the middle of the stream?

Mr. CURRAN. I was going to ask Mr. Hardy about that, because his statement that two-thirds of the dam is on the Canadian side is not accurate.

Mr. POWELL. He means two-thirds of the structure. That may be correct.

Mr. CURRAN. A lot of it is on land overflowed by the dam.

Mr. POWELL. That is not the bed of the stream?

Mr. CURRAN. No.

Mr. POWELL. I sent for this report. I thought it was strange the case had escaped my notice, as I had occasion to go into this, and I think there is a brief of mine on file in the United States office, about 300 pages, covering the whole question. This was a case bounded by a navigable river.

Mr. BAXTER. Yes; that is put on the ground of international waterway.

Mr. POWELL. No; I fail to find that in the case.

Mr. BAXTER. Oh, yes.

Mr. POWELL. I think you are relying too much on a casual expression.

Mr. TILLEY. That is the presumption from casual reading.

Mr. POWELL. This is simply an adoption on the great rivers of the American rule.

Mr. TILLEY. Yes; but we have not carried that through. We have gone back to the old English rule. Our court of appeal has ruled that

the presumption applies to the international boundary waters, but it is suggested that in the case of boundary waters it might be easier to rebut the presumption.

Mr. POWELL. Yes; in this case they held that the matter must stand or fall by the language of the document itself, without regard to extraneous circumstances. That is expressly emphasized by two or three of the judges.

Mr. TAWNEY. Do I understand that you propose to contend that these dams on the American side are legal structures now because of the company owning the abutting property and having the authority of the State of Maine to construct it?

Mr. TILLEY. That would be my contention.

Mr. TAWNEY. Without any authority from Congress?

Mr. TILLEY. Yes. They might have to get some approval in regard to obstructing navigation, but I mean as to title.

Mr. TAWNEY. As a matter of fact, under the laws of the United States these structures can not be considered legal, obstructing the navigability of the river.

Mr. TILLEY. I quite appreciate that; but I submit, as a matter of title, a person who owns the bed can erect a dam and divert the water through his own property and return it to the waterway, and he has not done any wrongful act. He is not a trespasser; he may be subject to some other law with regard to navigation.

Mr. TAWNEY. The St. Croix River is a navigable river under the laws of the States.

Mr. TILLEY. Yes; but with us it is not.

Mr. TAWNEY. It is a queer anomaly—navigable on one side and not on the other.

Mr. GLENN. Do you say this case has been changed or reversed?

Mr. TILLEY. No; it has not been reversed. I wish to refer to cases bearing on that.

TESTIMONY OF GEORGE F. HARDY.

(George F. Hardy, having been duly sworn, testified as follows:)

Mr. TILLEY. How long have you known the St. Croix River at the point we are concerned about?

Mr. HARDY. Since somewhere in the nineties.

Mr. TILLEY. What was the first investigation you made of it?

Mr. HARDY. In the fall of 1901.

Mr. TILLEY. For what purpose was that investigation made?

Mr. HARDY. To make a report for a Bostonian, A. H. Storey, who had an idea at that time of buying this property and selling to somebody to enable him to develop it.

Mr. TILLEY. That is this particular property?

Mr. HARDY. Yes.

Mr. TILLEY. You made a report at that time?

Mr. HARDY. Yes; and issued it in 1902.

Mr. TILLEY. What was the next thing you had to do with it?

Mr. HARDY. Then it was quiescent until the fall of 1904, and Mr. Hosford, now president of the St. Croix Paper Co., came to me for information regarding it, as he and his associates were thinking of buying the property with a view to developing it.

Mr. TILLEY. Did you investigate at that time?

Mr. HARDY. I did continually from then until the mill was completed at Woodland in the fall of 1906.

Mr. TILLEY. State what your qualifications are to pass upon matters concerning hydraulic developments.

Mr. HARDY. I made a list about two years ago of the mills I built, and it was somewhere between 30 and 40.

Mr. TILLEY. Where?

Mr. HARDY. All over the country.

Mr. TILLEY. All over the United States?

Mr. HARDY. Yes; and some in Canada.

Mr. TILLEY. Paper mills?

Mr. HARDY. Yes; and I have also done a great deal of hydraulic work.

Mr. TILLEY. Have you been acting in any capacity with regard to this company since they took over the property?

Mr. HARDY. I have been consulting engineer for them from then until now.

Mr. POWELL. Where is your firm?

Mr. HARDY. 309 Broadway, New York.

Mr. POWELL. What is the name of the firm?

Mr. HARDY. It is in my own name—George F. Hardy.

Mr. TILLEY. Something has been said about the Grand Falls dam and the possibility of making the development on the Canadian side. State what investigation you made with regard to that, when you made it, and what the result was.

Mr. HARDY. I first went to Grand Falls with the idea of studying the development. I tried the Canadian side, which seemed at the outset to be the natural side to make that development on. My instructions from the company were to report to them on the best, or, rather, the most commercially feasible, development, and I stuck to my preliminary idea of making that development on the Canadian side for a long time, until finally, when I was working through the woods on the American side, I noticed a sort of gully that seemed to cut across from the western branch to the foot of the rapids, and we were pretty busy in working out the plans for the Woodland mill, and I could not go around to make any definite survey to either confirm or disabuse myself of that idea. Finally I wrote to my engineer at Woodland in August, 1906, and reminded him that I had told him several months before that he should go up there and make me a survey. His reply was that he had not made a definite survey, but would do so immediately, and I got that survey from him in the early part of September, 1906. The first plan of the development as it stands to-day is marked February 10, 1907, and, strangely enough to my mind, it is almost identically the same development that we carried out on the American side. Usually in making these first studies I changed my mind a great deal.

Mr. TILLEY. So that, as you have it now erected, is the way it was planned as early as February, 1907.

Mr. HARDY. Yes.

Mr. TILLEY. And what do you say as to that being a proper method of developing the water powers that are referred to in the Canadian statutes. It speaks of the dams that may be erected at Spragues Falls; that is in section 7. Then in section 11 it goes on to provide:

The company may locate, erect, and maintain in the St. Croix River above Spragues Falls, at or near Grand Falls and Chipetnicook Falls on the said river, auxiliary dams, which shall be erected and maintained with the same

requirements and under like conditions as required by section 7 respecting the dams at Spragues Falls, and may use the power created by the said dams directly or locally or may transmit the said power by electricity or otherwise to tide waters on the said river or to points on the said river below the said dams.

Now, having regard to the fact that the dam at Grand Falls is an auxiliary dam to the dam at Spragues Falls, what do you say as to the method of developing the Grand Falls power that you have adopted?

Mr. HARDY. In my report to Mr. Storey in 1902 I then said that I thought the main mill should be located at Spragues Falls, that the Grand Falls development should be electrical, and that power taken by wire to Spragues Falls. There has never been any interval of time that I remember that I have considered Grand Falls as separate and distinct from Spragues Falls. It has always been considered by me as one property.

Mr. TILLEY. And one development?

Mr. HARDY. Yes.

Mr. TILLEY. What do you say as to the way it has been carried out? That is, having regard to the fact that they put the canal on the American side and carried the water through there, and possibly carrying the water down to a point below Grand Falls Dam? What do you say as that being a proper and efficient way of doing it?

Mr. HARDY. I have absolutely no doubt that both of the engineers of the commission would say, if they studied that carefully, that we have saved at least \$100,000 in making the development on the American side, as compared with what it would have cost on the Canadian side.

Mr. TILLEY. In developing the Grand Falls as an auxiliary power proposition to the one at Spragues Falls?

Mr. HARDY. No; rather in placing the development on the American side, as we did, as against making the development on the Canadian side, as I thought I should when I started.

Mr. MIGNAULT. What are your reasons?

Mr. HARDY. Two methods I had in view; one was naturally to place the dam at the foot of the falls, so as to shorten the necessary penstocks, which were necessarily very expensive. I had a contour line run out on the Canadian side, and while I can not find it in my office, yet my recollection is quite distinct that I found the dam would have to be about 2,000 feet longer to do that—nearly three times as long as where it is now.

Mr. POWELL. Building it below the Falls?

Mr. HARDY. Yes. Then, again, I tried with the idea of having the dam approximately where it is now and conveying the water by penstocks. I have been refreshing my memory to-day, and I find that to carry on the Canadian side the equivalent of four 14-foot penstocks it would be two 20-foot penstocks, and it would cost over \$400,000 to get the water down there for penstocks only. Therefore, it seems to me to-day, I unquestionably made the right decision.

Mr. GLENN. Would there not have been a big difference in the cost of the canal on the Canadian side and on the American side?

Mr. HARDY. But there was no chance for it; the ground is very low, and there were no evidences of rock for me to build on. If I had tried to carry the water down by the canal, it would have meant

that my canal walls at the power wheels would be 50 feet high, and perhaps more than that, because there was an unknown depth for foundation.

Mr. TILLEY. Were there any other determining factors in this or have you given them all?

Mr. HARDY. I thought nothing whatever regarding the rights of the company, as to whether they should build on the Canadian or American side, because I had been told we had them.

Mr. TILLEY. You just proceeded with it as a proposition to require you to exercise your judgment, regardless of rights of Canada, New Brunswick, or the United States?

Mr. HARDY. Yes; to get for the company the best commercial development.

Mr. TILLEY. The canal itself is something about 2,000 feet long?

Mr. HARDY. 2,400 feet long.

Mr. TILLEY. And the dam itself is how wide?

Mr. HARDY. It is between 1,100 and 1,200 feet, if I remember correctly.

Mr. TILLEY. It was said here to-day that the dam, as at present constructed, stands about two-thirds on Canadian soil.

Mr. HARDY. Yes.

Mr. TILLEY. Did that mean that two-thirds of the dam are on the bed of the old river?

Mr. HARDY. Far from it.

Mr. TILLEY. What does it mean?

Mr. HARDY. My associate has been making a sketch which illustrates it very well.

Mr. TILLEY. How does the dam run?

Mr. HARDY. It runs nearly north and south.

Mr. BAXTER. Which side is the Canadian?

Mr. HARDY. The north side.

Mr. BAXTER. How much of the dam lies to the north of the middle thread of the river?

Mr. HARDY. On the original bed of the river somewhere between 43 and 45 feet is on the Canadian side, on the original bed on the Canadian side.

Mr. TILLEY. Then, of course, beyond that we have more of the dam that is undoubtedly on the private property we own?

Mr. HARDY. Yes.

Mr. TILLEY. But that is on the bed?

Mr. HARDY. Yes.

Mr. TILLEY. How much is on the bed on the American side?

Mr. HARDY. The same.

Mr. TILLEY. So that the middle thread runs through the center of the dam?

Mr. HARDY. Yes.

Mr. TILLEY. If the dam had been built on the bed of the old stream?

Mr. HARDY. Yes.

Mr. TILLEY. The bed of the stream at that point where the dam is was originally 90 feet?

Mr. HARDY. Yes.

Mr. POWELL. On the American side they built from the bed of the stream how far on the Canadian side?

Mr. HARDY. At the place where our dam crosses it is a sort of gully. Twenty-seven per cent of the completed dam is on American territory and 73 per cent on Canadian territory.

Mr. POWELL. That explains it.

Mr. MIGNAULT. Where does the international boundary run there?

Mr. TILLEY. At the place where the dam was built the bed of the stream was 90 feet wide?

Mr. HARDY. Yes.

Mr. TILLEY. And the division point in the stream would be about the center?

Mr. HARDY. Yes.

Mr. MAGRATH. In other words, two-thirds of the dam is on the Canadian side, and of that two-thirds 45 feet are on the bed of the stream?

Mr. TILLEY. Yes; and 45 feet are on the American side. Have you gone over the report that was read this morning by Maj. Pope?

Mr. HARDY. Sufficiently to say that I have no objection to it. I am not able to criticize it in any way, except that statement in regard to the feasibility of building the development on the Canadian side, I think, was made with reference to its engineering possibilities rather than to its commercial possibilities.

Mr. TILLEY. By that you mean what?

Mr. HARDY. I mean to say almost anything is possible, in an engineering way, if one has the money.

Mr. TILLEY. But the cost would be so great that it was not commercially proper to do it?

Mr. HARDY. Yes.

Mr. POWELL. I thought it was only \$100,000 difference between the two schemes?

Mr. HARDY. I might say, fairly, that the power at Grand Falls has cost us more than I would have been inclined to authorize when we first started in. It is a very expensive development.

Mr. TILLEY. You are speaking of the actual cost?

Mr. HARDY. Yes.

Mr. TILLEY. Another \$100,000 on top of it would be more than you would have been willing to recommend?

Mr. HARDY. Yes.

Mr. TILLEY. Is there anything else you desire to make a statement about, that arises out of Maj. Pope's report, or what was said in his evidence?

Mr. HARDY. No.

Mr. TILLEY. Have you made any computation as to the undeveloped powers along the river?

Mr. HARDY. I did not. I have taken the blue print shown in Maj. Pope's and Mr. Stewart's report, and I have my opinion regarding it.

Mr. TILLEY. And what is that?

Mr. HARDY. I heard some questions put to Mr. Pope regarding the feasibility of developing these possible water powers, and I understood that his doubt was regarding some of the lower heads, and I think the position was rightly taken. I have added up the mean flow of the possible water powers, and I find that if I deduct everything under 12 feet head, I then have as much mean flow possible of

development as has heretofore been developed; therefore, it would seem to me, that he could answer the question more emphatically that was put to him by Judge Koonce, that it was still possible for the Canadian Government to obtain equivalent flow with what has already been developed commercially.

Mr. POWELL. Equivalent flow, but that is not the point. It is equivalent power.

Mr. HARDY. Equivalent flow means equivalent power could be developed for it.

Mr. POWELL. It would make a difference whether it is a head of 20 feet or a head of 70 feet?

Mr. HARDY. Yes, that is true; and the same question enters in as regards the market and as regards the cost of development.

Mr. HARDY. It is quite possible that some of the possible powers here would cost so much to develop that one could not sell the power at a profit, but I am in the same quandary that Maj. Pope was to answer the question absolutely definitely without considering each power by itself.

Mr. POWELL. You would estimate the cost of development and the price of the product?

Mr. HARDY. I should want to make preliminary estimates of the cost of developing each particular power, and I should want to know where it would be developed and what probable price I could get for it.

Mr. MIGNAULT. Could you go so far as to say you would recommend the available powers as the equivalent to the Sprague Falls and Grand Falls development?

Mr. HARDY. I could not in value, but I would say the opportunity exists; the equivalent opportunity exists.

Mr. TILLEY. What would you say if you were to compare it not with Spragues Falls and Grand Falls but to Grand Falls only?

Mr. HARDY. It is really rather difficult for me to say that I could not develop all those powers as cheaply per horsepower as the Grand Falls power actually costs here.

Mr. TILLEY. And get the equivalent of power?

Mr. HARDY. Yes.

Mr. TILLEY. This is the only power that has been developed since the treaty on that river?

Mr. HARDY. That is all that I know of.

Mr. TILLEY. Starting from that data, you say there would be equivalent power left that could be developed just as cheaply, in your opinion, as those at Grand Falls?

Mr. HARDY. The word "opinion" means too much to me to apply it to a thing like that. It is rather my feeling or my impression.

Mr. MIGNAULT. You would not desire to put it any stronger than that?

Mr. HARDY. No.

Mr. TILLEY. It would require a very thorough examination to express an opinion?

Mr. HARDY. Yes.

Mr. MIGNAULT. You are not in a position to express a definite opinion?

Mr. HARDY. No.

Mr. TILLEY. Where is the confluence of the west and east branches of the St. Croix?

Mr. HARDY. I understand that Youngs Island, which is in the middle of the stream or confluence, is American territory, therefore I may fairly assume that the boundary line runs to the east of Youngs Island.

Mr. TILLEY. So that the power canal runs from where the bed of the west branch of the St. Croix was and still is down through the State of Maine to the boundary waters?

Mr. HARDY. Yes.

Mr. TILLEY. And it leaves the west branch at a point that is entirely in the State of Maine?

Mr. HARDY. Yes.

Mr. TILLEY. Where do you say the junction of the two branches would be?

Mr. HARDY. I should say that junction, under natural conditions, would be about there, where I have put the cross in pencil; that is where the waters join; that is Youngs Island.

Mr. MIGNAULT. It would be at the lower end of Youngs Island?

Mr. HARDY. There are three places that might rightly be considered as junctions.

Mr. TILLEY. Did you ever consider the erection of a dam that would divert the waters of the west branch of the river only?

Mr. HARDY. No, sir.

Mr. TILLEY. Would that possibly put your dam entirely on the main territory?

Mr. HARDY. It would have been possible for me to build the dam entirely above the junction of the river.

Mr. TILLEY. That is along the west branch?

Mr. HARDY. Across the west branch.

Mr. TILLEY. In Maine?

Mr. HARDY. Yes.

Mr. TILLEY. So that the whole dam would be in the State of Maine and would cut off the waters of the west branch only?

Mr. HARDY. Under these conditions I would have been obliged to build another power house to take care of the waters of the east branch.

Mr. TILLEY. But that would be a possible way——

Mr. HARDY. I would call it absurd.

Mr. TILLEY. It would be absurd to go to that trouble, but you could divert the waters from the west branch in the State of Maine, and cut it off from going into boundary waters, keep it on to your property, and turn it into boundary waters at another point?

Mr. HARDY. Yes.

Mr. POWELL. That is, de facto, he could have done it.

Mr. TILLEY. Yes; and de jure probably.

Mr. MIGNAULT. Is it material to say they could have done something which they have not done?

Mr. TILLEY. I think it is an element that might be taken into consideration by the commission that another way would be to divert the water and carry it down through that canal. Then, having seen that river in its original condition, what do you say as to the navigability of the river or the nonnavigability of it?

Mr. HARDY. There was a carry around Spragues Falls, and it was common for boatmen going up the river to carry their stuff around the falls and carry their boats over it?

Mr. POWELL. Portage?

Mr. HARDY. Portage, yes. The picture of Spragues Falls is so clear in my mind that I would say absolutely that no boat could have been propelled over it; it was short and precipitous.

Mr. POWELL. And how high? What would the fall be?

Mr. HARDY. My recollection is about 14 feet.

Mr. POWELL. Can you not all agree on that, that it is only navigable for loose logs?

Mr. TILLEY. Yes. I did not ask you about the Canadian mills you have put up—the pulp mills.

Mr. HARDY. I built the Laurentide, all of it, and I am building the Abittibi up in Upper Ontario. I built the Powell River Paper Co., of British Columbia, the Lake Superior Paper Co. of Sault Ste. Marie. I built the Price Bros. mill at Temagami, Quebec; I think probably the last 10 years the bulk of my money has been expended in Canada. I might say I built the Anglo-Newfoundland Development Co., at Grand Falls, Newfoundland.

TESTIMONY OF MAJ. F. A. POPE.

(Maj. F. A. Pope, being recalled, testified:)

Mr. KOONCE. Under this treaty one of the things you have to consider is the uses of streams for navigation. You are the engineer officer in charge of the improvement of rivers and harbors in the State of Maine?

Mr. POPE. Yes.

Mr. KOONCE. Have you made an examination of the St. Croix River sufficient to express an opinion as to its navigability?

Mr. POPE. Yes; I have.

Mr. KOONCE. Having in view the definition laid down by our supreme court as to what constitutes a navigable stream, how do you consider this section of the St. Croix River?

Mr. POPE. Under the decision of our courts the St. Croix River is navigable in law, as well as in fact, from the head of Mud Lake to the ocean. Above that point I do not know, because I have not seen it; but from the head of Mud Lake to the ocean it is navigable in law and in fact, as far as the United States is concerned.

Mr. KOONCE. Take the section across which this dam is built—do you consider that navigable?

Mr. POPE. Yes; that was navigable.

Mr. POWELL. Is the term “navigable” not used with reference to some statutory declaration?

Mr. KOONCE. No; it is a question of fact.

Mr. MIGNAULT. But what constitutes navigability has not been defined.

Mr. KOONCE. Yes, by our Supreme Court; and it has held that any stream on which logs can be floated periodically with commercial profit is navigable.

Mr. POPE. Any kind of commerce; anything carried on commercially on that river makes it navigable; and logs have been floated down the St. Croix River, and it is therefore navigable.

Mr. KOONCE. The St. Croix is navigable for the floating of logs?

Mr. POPE. Yes.

Mr. KOONCE. Have you examined these dams with respect to their possible effect on navigation on this river?

Mr. POPE. I have specially examined only one. I noticed at a number of them that the logs are allowed to go down, and I have only examined the Grand Falls with a special view to that purpose, because the matter of the Grand Falls was put to me by my department, as to whether they had provided sufficiently for navigation, and I determined that they had provided sufficiently for floating these logs down the river at this dam. At the others the examination was only casual and has largely been taken by the general agreement of people on the river that logs are floated down and the river is used, and there is no claim to the contrary. I specially examined Grand Falls Dam with this in view, because the question as to navigation was my only connection with the case. This report as to water power is at the request of the commission.

Mr. KOONCE. Do you consider the facilities for navigation, or the condition of the river for the floating of logs or any other navigation of which it is capable, is as good now as it was before the dams were built?

Mr. POPE. I can not say. If they were very steep and very bad falls, it would be apt to be better. On the other hand, if there was no necessity to run the logs through a sluice, it would be more difficult.

Mr. KOONCE. Do you consider the present provision ample?

Mr. POPE. I consider the present provision ample, and I have examined carefully to see.

Mr. KOONCE. In your capacity as officer in charge of those improvements, to whom objections and complaints would naturally be made, have you had any complaint from navigation interests against these dams?

Mr. POPE. I have had no complaint, and I took occasion to inquire, when I was on the river, if there were any complaints, and I have never found any.

The commission adjourned at 5.35 p. m. until 3 p. m. to-morrow, Wednesday, October 6, 1915.

INTERNATIONAL JOINT COMMISSION,
Ottawa, Ontario, Wednesday, October 6, 1915.

The commission resumed the further hearing of the application for approval of the diversion of the the waters of the St. Croix River.

Present: All the commissioners and both secretaries, Mr. Magrath presiding.

The commission resumed the hearing at 3 o'clock this afternoon.

All the counsel were present.

Mr. TILLEY. Mr. Hardy has had more time to go over the report made by Mr. Pope and Mr. Stewart, and he has summarized some figures, and I would like to put in the tabulation; it might be helpful in showing the power developments of those that are developed already and those that may be developed in the future. This will make a complete summary of the whole thing.

TESTIMONY OF GEORGE F. HARDY, RECALLED.

(George F. Hardy, being recalled:)

Mr. TILLEY. Make you statement, Mr. Hardy.

Mr. HARDY. My statement is as follows:

In the examination before the commission of the writer and Maj. Pope the trend of the questioning, as I understood it, was to finalize the results from the report submitted by the commission's engineers, so as to bring out clearly the relative amounts of power on the St. Croix River now used in the United States and Canada, and whether there is sufficient undeveloped power remaining in that river so that if fully developed, sufficient power would be available to make an equal division of the power between the United States and Canada.

To show this I have extended the table prepared by the commission's engineers, which I herewith submit, and which shows that the power used on the Canadian side is 2,000 horsepower, on the American side it is 20,475 horsepower, and that there still remains in that river a possible additional power, either by the further development and use of existing powers, or by the development of new powers, amounting to 27,190 horsepower, an excess of 9,000 horsepower over what would be required to make an equal division of the power on the boundary river between the United States and Canada.

The question was also raised regarding the relative market value of the possible additional power above the St. Croix Paper Co. development at Grand Falls, as compared with that at Grand Falls or below. I have therefore shown as an extension to the report submitted by the commission's engineers the amount of possible additional power below Grand Falls, and find that it is 18,051 horsepower, an apparent shortage of 424 horsepower, which is a negligible amount compared to the setting aside of 9,139 horsepower above Grand Falls by this method of reasoning.

These figures are all based upon the mean power shown in the commission's engineers' report, and in that report where the used power is stated as both Canadian and American, I have assumed it as equally divided between the two countries.

As regards the question of whether the Grand Falls development might not have been placed on the Canadian rather than the American side, I ask permission to change my testimony after further consideration, by stating unqualifiedly that if the entire development had been placed on the Canadian side it would have cost the St. Croix Paper Co., at the very least, \$300,000 more, and that to obtain an equally efficient development in all particulars as to what it now has, that my impression without developing detail plans from which to figure costs, is that it would have cost nearly \$500,000 more.

The following table is based on mean-flow horsepower :

Used power.		Additional power possible.	Additional power possible below Woodland.
Canada.	United States.		
125	125	3,792	3,792
1,500		2,440	3,440
25			
200	200		
150	150	6,137	6,137
	200		
		4,682	4,682
	9,918		
	9,882		
		3,130	
		2,995	
		572	
		545	
		820	
		854	
		223	
2,000	20,475	27,190	18,051

Mr. BAXTER. You are taking in there the possibility of increasing the Woodland power?

Mr. HARDY. We have left the Woodland powers exactly as they are stated on the sheets, which was to take the main power which they stated as the capacity of the Grand Falls development when completed.

Mr. BAXTER. Can you say whether the power there is capable of increase?

Mr. HARDY. By installing one more wheel. The development has been planned for one more wheel. The development had been planned for three units, and two have already been installed.

Mr. BAXTER. If that were done, would there still be equal possibility on the Canadian side?

Mr. HARDY. The statement I read was based on their putting in the other unit.

Mr. BAXTER. Is it possible for them to obtain greater heights of dam or greater fall of water?

Mr. HARDY. No, sir; we are prevented from that by a ruling of the State of Maine engineer.

Mr. TILLEY. And that credits that to the American side—the maximum development at Grand Falls?

Mr. HARDY. Yes.

Mr. JAMES WHITE. Are those three units all 3,000 horsepower?

Mr. HARDY. 4,000 each; 12,000 total.

Mr. WHITE. 9,000 now?

Mr. HARDY. About 8,000 now; an increase of 4,000.

Mr. TILLEY. That is all the evidence we propose to put in on behalf of the applicant companies. Mr. MacInnes has suggested that it might be desirable that he should state the position of the Dominion, as Mr. Baxter did for the Province of New Brunswick yesterday, and it might shorten up matters if he did.

Mr. MAGRATH. Very well.

Mr. MACINNES. Before doing so, I should like to have permission to call Mr. Stewart, who wished to make a few remarks supplement-

ary to the joint report of Maj. Pope and himself, with regard to sluices in this dam, and also in connection with possible control of this structure, not merely as a water-power producing structure but as a dam in international water.

Mr. MAGNAULT. May I call your attention to this: There was a suggestion at the last meeting at Calais, that the company had not provided for fishways in the dam?

Mr. MACINNES. Quite so. I am glad you called my attention to the fact, because Mr. Stewart mentioned just now the fact that a member of the fisheries department of the Dominion Government is here this afternoon. He misunderstood the date of the meeting, and I will call him after Mr. Stewart.

TESTIMONY OF W. J. STEWART.

(W. J. Stewart, having been recalled:)

Mr. MACINNES. Will you state to the commission such remarks as you consider necessary, supplementary to your joint report?

Mr. STEWART. I do not think that remark is quite right. I do not consider it supplementary to the report. It is only a few remarks more as an official of the Canadian Government and not as one of the members of the board associated with Maj. Pope, who has left.

Mr. MACINNES. I meant supplementary in that sense—additional or otherwise.

Mr. STEWART. It is something additional to our duties.

Mr. MACINNES. That is exactly what I want.

Mr. STEWART. Paragraph 11 of the act says—

Mr. MACINNES. State the act.

Mr. STEWART. The act of incorporation of the Spragues Falls Manufacturing Co.

Mr. POWELL. By the Dominion?

Mr. STEWART. Yes.

Mr. POWELL. That is 1902?

Mr. STEWART. Yes.

Mr. POWELL. Second Edward VII, chapter 103?

Mr. STEWART. Yes. Section 11 reads as follows:

11. The company may locate, erect, and maintain in the St. Croix River, above Spragues Falls, at or near Grand Falls and Chipetnicook Falls, on the said river, auxiliary dams, which shall be erected and maintained with the same requirements and under like conditions as required by section 7 respecting the dams at Spragues Falls.

Then, section 7 reads:

7. The company may locate, erect, and maintain at or near Spragues Falls, in the St. Croix River, in the county of Charlotte, in the Province of New Brunswick, dams, with the right of flowage, for the purpose of holding reserves of water in the said river and the storing and holding of timber, logs, or other lumber: *Provided*, That in the construction of such dams an opening or openings, with the necessary slides and gates, sufficient for the safe transmission of square timber, saw logs, or loose lumber, shall be maintained free of charge for the use of all persons who may desire to transmit square timber, saw logs, or loose lumber, and the company shall be liable to pay damages to any owners of property injured by any overflowing of the waters of the said river caused by the said dams.

I wish to make a statement that there are no log sluices on the Canadian side of the dam; that is to say, the Spragues Falls Manufacturing Co. have not placed sluices in the dam.

Mr. MACINNES. At Spragues Falls?

Mr. STEWART. At Grand Falls. Paragraph 11 says the dam shall be similar to the one at Spragues Falls, and for the one at Spragues Falls they called for the building, operating, and maintaining of log sluices.

Mr. GLENN. No log sluices either place?

Mr. STEWART. There is a log sluice on the American side.

Mr. GLENN. Is there one at Spragues Falls on the Canadian side?

Mr. STEWART. I do not know whether there is one at Spragues Falls or not, but the act calls for one on that side.

Mr. TILLEY. On the side?

Mr. STEWART. The act, which is a Canadian act, calls for a log sluice in the dam of the Spragues Falls Manufacturing Co. That is the dam on the Canadian side. The Canadian Government has no say as to the other side.

Mr. TAWNEY. Do you know the number of thousand feet of logs that is transported down the St. Croix River?

Mr. STEWART. I do not know the number; but it is pretty large, because I saw a tremendous amount of logs when I was there. When we came down we could not get within miles and miles of the dam. We came all the way down the river in canoes and were bothered with logs all the time.

Mr. TAWNEY. They were logs that came down during the logging season?

Mr. STEWART. Yes; and passed over the dam. There is a log sluice on the American side.

Mr. TAWNEY. Has there been any complaint on the part of any of the lumbering interests about not having sufficient sluicing capacity in the Grand Falls Dam?

Mr. STEWART. I have not heard of it, but I was drawing attention to the fact that the dam has not been constructed in accordance with the law.

Mr. TAWNEY. I did not know but possibly you heard of some complaints being made of there not being sufficient capacity in the sluiceways of the dam to accommodate the logging and lumbering interests at that point?

Mr. STEWART. I just want to make it a matter of record, particularly as the dam has been constructed with practically no supervision; in fact, no supervision on the Canadian side.

Mr. TILLEY. Is the sluiceway in the bed of the old stream or away off to one side?

Mr. STEWART. Away off to one side, right close to the shore; right on the shore.

Mr. MIGNAULT. We saw it when we were there. It is all right where it is.

Mr. MAGRATH. You do not mean to say the sluiceway that is there is not sufficient for the needs of log drivers?

Mr. STEWART. As far as I could see, I think it is, except that some day the laws may be altered, and it might lead to some inconvenience to go on the American side of the river to pass the logs.

Mr. POWELL. Your point is this: That while the river is open for the purpose of navigation to both countries from bank to bank, this is not the case in the portion of the river where the dam is, and it

would necessitate the taking of logs through United States territory to get them downstream?

Mr. STEWART. That is the point. I think the logs wiggle a good deal from one side to the other on the way down. There is another matter: The dam is constructed now and additional flashboards are being put on. I think the commission should limit the height of these flashboards; that the water should not be allowed to be raised any more than it is at present.

Mr. TAWNEY. What have you to say about the international regulation of the operation of the dam?

Mr. STEWART. I was coming to that next.

Mr. MIGNAULT. To complete your statement, would you say how high, in your opinion, the water should go, and no farther?

Mr. STEWART. I can not give the exact figure just now. I have not the figures. There are a great many levels, and I am trying to get them tied to some datum.

Mr. MIGNAULT. Because it is very difficult to follow your statement; you say the water should not be any higher than it is now?

Mr. STEWART. The flashboards should not be any higher than they are to-day. I will get the figures.

Mr. POWELL. What is your objection?

Mr. STEWART. There might be all sorts of objection; might be all sorts of flooding on the American side. They have a town there.

Mr. GARDNER. Do you mean above the dam or below?

Mr. STEWART. Away above the dam; it is raising the water above the dam. Up at Princetown, there is a village there, and we do not know what would happen in the future.

Mr. MAGRATH. As a matter of fact, did the company not obtain all the land up to a contour of the same elevation as the top of the dam?

Mr. STEWART. I heard some talk up there of putting in additional flashboards, but they should be placed at some point—

Mr. POWELL. How would that flow more land than they have acquired the right of flowage to?

Mr. STEWART. I could not say. I do not know whether the flowage goes much beyond the present height of water.

Mr. POWELL. Your objection is that it might flow to this little village or town?

Mr. STEWART. Principally, and I do not think any company should raise the water as high as they like. There should be some limit to it.

Mr. MAGRATH. It has been fixed, I believe, by the Public Utilities Commission of Maine.

Mr. TILLEY. Canada is not much concerned with it when it is in Maine?

Mr. STEWART. We may not be directly.

Mr. POWELL. How far does it back the water up on this side?

Mr. STEWART. Up nearly to the head of Spednic Falls, 5 or 6 miles.

Mr. POWELL. Are the banks precipitous or low land?

Mr. STEWART. Low land.

Mr. MAGRATH. You will give us figures later?

Mr. STEWART. Yes. I think all dams across international streams should be under some joint control.

Mr. MIGNAULT. When will you give us these figures?

Mr. STEWART. By the end of the week.

Mr. MIGNAULT. You will send them to the secretary?

Mr. STEWART. Yes.

Mr. POWELL. What would your idea be? Some such control as established at Sault Ste. Marie?

Mr. STEWART. Any sort of joint control that would be fair.

Mr. POWELL. That is a typical case?

Mr. STEWART. Yes, it has been started there, and I think it should be carried out all along.

Mr. POWELL. Our power is very general. We have power over existing dams as well, if they are really obstructions. We have general jurisdiction over obstructions. Would you extend the control of this supervisory board to all the dams in existence and the dams in future?

Mr. STEWART. I think it would be fair to all parties on the river to establish joint control.

Mr. POWELL. What view of that question do the cotton mill people take?

Mr. STEWART. They are objecting to it.

Mr. POWELL. Why?

Mr. STEWART. They think they have certain rights in the river, and they do not think anyone has any right to interfere with them. They consider they have rights at their place, and it is nobody's business to interfere with them.

Mr. MIGNAULT. Possibly they are right, inasmuch as their development was made before the treaty.

Mr. STEWART. Of course that would apply to all the dams below Grand Falls.

Mr. MIGNAULT. I quite appreciate the fact.

Mr. POWELL. A very serious question might arise; supposing they said: "Here, we want the natural flow of that stream and do not want it penned back for two or three months." They would bother the people up above in that event.

Mr. STEWART. They are very much pleased with the storage considering they are very much better off to-day than before there was any storage; but there is some little complaint, particularly on Mondays; the water does not come down in time to start their mill, and all hands arrive to find they can not start work.

Mr. MAGRATH. This is not a storage dam we are dealing with?

Mr. STEWART. Well, partly. They do not let any water pass Woodland. I do not see any advantage in that this year, because there is plenty coming down.

Mr. MAGRATH. How do they get their power unless they hold the water up to practically a fixed level?

Mr. STEWART. They have to hold the water up.

Mr. MAGRATH. Is it a storage dam we are dealing with?

Mr. STEWART. The Grand Falls Dam is a power dam.

Mr. POWELL. But it is storage as well?

Mr. STEWART. I understand they hold the water there to keep the head constant. If the supply is running light they shut off some of the wheels for this purpose.

Mr. POWELL. If they are making too much draft on it, they shut off their power and save it?

Mr. STEWART. They could fill it up, as far as that goes.

Mr. POWELL. Would there not be a time of the year when they used only the natural flow, which in October would not be sufficient—

Mr. STEWART. They then draw on the storage up above.

Mr. POWELL. They are drawing on the whole storage system?

Mr. STEWART. Their storage is all above there. That is all I have to say.

Mr. MAGRATH. Did you say you could clear up that situation as to elevation?

Mr. TILLEY. I think we can.

Mr. SMITH. The elevation of the flash boards now is 197.

Mr. STEWART. The only question is as to being tied to some datum.

Mr. TILLEY. What is the datum to which that is connected?

Mr. SMITH. The Maine Central Railroad datum, 197. The top of the dam is 196½, and there is 12 inches of flashboard.

Mr. MAGRATH. What is the elevation to which you are confined by the State of Maine?

Mr. SMITH. It is 199.21 at Princeton, where the State of Maine have established a bench mark, over which we can not flow the water.

Mr. STEWART. That is perfectly satisfactory.

Mr. SMITH. We are controlled by the State of Maine, and can not raise the water above that point.

Mr. POWELL. We want to know about this. Is that a matter agreed upon all around? Is there no dispute about the datum? Is it sufficiently well established that in future there can be no dispute?

Mr. SMITH. Yes; no question about that.

Mr. POWELL. And the datum is the ordinary tidal water in the St. Croix?

Mr. WHITTIER. The datum is the Maine Central Railroad datum.

Mr. POWELL. What is that?

Mr. STEWART. That is an assumed plane from which our measurements are taken.

Mr. POWELL. Is that sea-level datum?

Mr. WHITTIER. I believe it is mean sea-level datum.

Mr. STEWART. I want to make that perfectly plain and I want to get that information.

Mr. POWELL. Better get it settled between you.

Mr. TILLEY. Apparently the restriction is 199.21, and that is quite satisfactory, I suppose?

Mr. STEWART. Yes.

Mr. POWELL. That is upstream; there would be the descent of the stream; that would not mean 199 below.

Mr. TILLEY. No.

Mr. STEWART. The only thing is we should be tied to some datum.

Mr. SMITH. If we used the Main Central datum, that would tie it to the datum from which all this engineering work was done.

TESTIMONY OF W. A. FOUND.

(Mr. W. A. Found, having been duly sworn, testified as follows:)

Mr. MACINNES. State your position in the Dominion Government.

Mr. FOUND. Superintendent of fisheries.

Mr. MACINNES. Will you inform the commission of the views of your department with regard to these two applications now before the commission in respect to anything dealing with fisheries?

Mr. FOUND. It may be necessary for me, Mr. Chairman, to preface my statement by an explanation. Will that be in order?

Mr. MIGNAULT. Certainly.

Mr. FOUND. When this matter first came to the attention of the fisheries branch I was not clear, or the department was not clear, as to whether the dam had not first to be put there with the consent of the commission before it might legally be put there; so that we hesitated to finally consider the question of a fishway until we knew the attitude that would be taken on the matter by the commission. I refer to the fisheries act, section 31, 4 and 5 George V, chapter 8. I may explain that this act is merely a consolidation of the previous fisheries act, and this clause to which I have reference existed in the previous act.

Mr. TILLEY. Read the section.

Mr. FOUND. The section reads:

Every slide, dam, or other obstruction across or in any stream where the minister deems it to be necessary for the public interest that a fish pass should exist, shall be provided by the owner or occupier with a durable and efficient fishway or canal around the slide, dam, or other obstruction, which shall be maintained in a good and effective condition by the said owner or occupier in such place and in such form and capacity as will, in the opinion of the minister, satisfactorily permit the free passage of fish through the same.

Mr. MIGNAULT. You have noticed, have you not, a similar provision in section 7 of the act of incorporation of the Sprague's Falls Manufacturing Co., (Ltd.)?

Mr. FOUND. That has been brought to my attention, that they must comply with the law.

Mr. MIGNAULT. Subsection 3 of section 7 states that the company shall, without delay, build and maintain in said dam such fishways and of such design as may be prescribed by law.

Mr. FOUND. Yes. So that, so far as the dam in the Canadian portion of the river is concerned, as soon as the dam is legally there, it is quite competent for the minister to arrange for the provision of a fishway in it.

Mr. MAGRATH. The company have stated their willingness to attend to that matter at any time.

Mr. FOUND. I understand so.

Mr. MIGNAULT. Could you say what fishway you would recommend at the moment?

Mr. FOUND. I could not say at the moment. I was awaiting the action of the commission on that question of the dam itself.

Mr. GLENN. I understand at the last meeting we had in Calais that the owners of the dam consented to put it in.

Mr. TILLEY. Yes; just as soon as we are told what is required. There is no use putting one in and having a complaint about it. We do not want to spend money uselessly. As soon as we are told what to do we will be glad to do it.

Mr. FOUND. If I may express an opinion, our information at the moment is not as official as I should like it to be as to the conditions. It may be it would be desirable to have a fishway in each dam, as far as the fisheries are concerned.

Mr. MAGRATH. What do you mean?

Mr. FOUND. There is a dam at the foot of the canal on the United States side. There is also a dam in the river above; it may be quite desirable, from a fisheries standpoint, to have a fishway in each dam. Under the fisheries act we would have authority only over that dam in the main river.

Mr. MAGRATH. As the other dam is in the United States waters?

Mr. FOUND. Yes. It might be desirable that it should be provided that a fishway should exist in the dam on the American side as well as one on the Canadian side.

Mr. MIGNAULT. We could make that a condition of our approval if we saw fit, I presume?

Mr. FOUND. It would be eminently desirable, from a fishery standpoint, that it should be provided that there should be a fishway on the American side, if it is thought desirable.

Mr. POWELL. Are there any known appliances or schemes of fisheries which would really serve a practical purpose?

Mr. FOUND. How high is the dam?

Mr. POWELL. About 60 feet, I think. What do you think of that?

Mr. FOUND. It is a very difficult matter, in the light of my experience, to get any fishway that will be materially efficient in a dam of that height. I have yet to get information of one.

Mr. TILLEY. Is Prof. Prince designing one down there now?

Mr. FOUND. A fishway, I understand, is being tested out in the Magagaudavic River. It is entirely a new scheme. If it is entirely effective, it may be that it could be arranged to have such a dam, but until we have information regarding the matter——

Mr. TILLEY. What is the head at the Magagaudavic?

Mr. FOUND. I speak entirely as a matter of opinion; I should judge between 20 and 30 feet.

Mr. SMITH. It is nearer 50.

Mr. STEWART. The dam in the main river is not that high. Were you asking about the main dam?

Mr. POWELL. No; I meant the gateway or head flume.

Mr. STEWART. Down there, about 50 feet.

Mr. POWELL. And the one above?

Mr. STEWART. Twenty feet.

TESTIMONY OF JAMES WHITE.

(Mr. James White, having been recalled, testified as follows:)

I appear, on behalf of the commission on conservation, to make a few representations respecting the Grand Falls Dam. Speaking in a general way, two plans have been suggested to solve the difficulty or the differences that have arisen in connection with this dam. One was the division of half the water at the Grand Falls Dam. The commission on conservation has never considered that that is a practical proposition. The other plan was to offset other power sites against it, in accordance with the report of the engineers. I am instructed to say the commission consider that that settlement is wholly illusory and will not be in any way satisfactory; that all these dams must stand, each as a separate unit and to be considered each on its own basis. The commission, in arriving at a recommendation,

examined with particular care the agreement entered into between the Government of the United States and the Michigan-Lake Superior Power Co. That agreement provided for the payment of \$2 per cubic foot per second, which, translated into horsepower, means \$1.50 per horsepower per annum. We are told that they are to-day using at the Grand Falls 9,000 horsepower and they propose to increase that to 12,000. The one-half of that power at \$1.50 per annum would be equal to a payment of \$6,000 per annum, or \$9,000 when the third unit is put in. Yesterday it was stated that the cost of the dam was \$200,000 and that 73 per cent was on the Canadian side, making the cost of the Canadian portion \$146,000. If payments were made by the applicant company on the same basis as payments by the Michigan-Lake Superior Co., with the present two units, it would extinguish the cost of the dam in 24 years. If the third unit were installed, at the rate of \$9,000 per annum, it would extinguish the cost of the dam in 16 years. If you take the mean, it would extinguish the capitalized cost in 20 years.

The commission on conservation, in endeavoring to arrive at a recommendation which would be fair to the company and fair to the Province of New Brunswick, is of the opinion that the company should pay an amount sufficient to form an amortization fund to extinguish the cost of the dam in 30 years. The dam then becomes the property of the Province of New Brunswick or the Dominion of Canada, as may seem most satisfactory. That is the sum of the recommendation.

Mr. POWELL. You mean, by the dam, half the dam—from the center of the stream to the Canadian bank?

Mr. WHITE. From the center of the stream to the extreme end of the Canadian bank. Unfortunately, I was unable to obtain the signature of the chairman, Sir Clifford Sifton, to the official recommendation, but I shall have much pleasure in filing it with the commission in a day or two.

Mr. TAWNEY. Do you include that portion of the dam which is on the property above the bank and which is owned exclusively by the company?

Mr. WHITE. Yes; on exactly the same principle. It is an extension of the same principle that was adopted with reference to the Michigan-Lake Superior Power Co.

Mr. TAWNEY. You mean the Michigan Northern Power Co.?

Mr. WHITE. I understood it was the Michigan-Lake Superior Power Co.

Mr. TAWNEY. There the dam is wholly upon property belonging to the United States. I wanted to know if your ideas would include compensation for those waters or pay for that part of the dam which is exclusively on property owned by the applicant company?

Mr. WHITE. No. I would form an amortization fund to vest the title of the dam in the Province of New Brunswick or in the Dominion of Canada for transference to the Province.

Mr. TILLEY. In the end who would own the dam?

Mr. WHITE. The Province of New Brunswick or the Dominion of Canada.

Mr. TILLEY. Which would own it—New Brunswick or the Dominion of Canada?

MR. WHITE. Inasmuch as the Province of New Brunswick has full control of its waters, the commission on conservation, while not wishing to make a definite declaration for or against the Province in which the dam is situated in favor of the Dominion, was of the opinion that the title should be vested in the Province; but inasmuch as it might be more convenient for natural purposes to vest it in the Province, that is a point into which they did not care to enter, leaving that as a point of approval later.

MR. TAWNEY. On what principle of right and justice do you claim to be compensated for that part of the dam? You ultimately own that part of the dam which is erected on property owned by private parties. On what principle do you justify the claim?

MR. WHITE. If I may go back to the beginning, the basic principle in connection with all these divisions of water powers is that of equal benefits. The company has invested a very large amount of money. The company is entitled to fair treatment, and at the same time half that water belongs to the Province of New Brunswick.

MR. TAWNEY. Half of the water which belongs to the Province of New Brunswick runs in the bed of the stream; it does not run up over this land.

MR. WHITE. It does when the dam puts it there. The water comes down the stream where the dam raises it, and finally it makes no difference; it is the same water.

MR. TILLEY. Your idea is that the dam should belong at the end of the time to whoever owns the land on which it is built?

MR. WHITE. If you will allow me to follow out the thread of the argument, possibly I can make myself somewhat clearer. The basic principle is the principle of equal benefits to both nations. Now, under the present division the benefits practically all accrue to the United States. Now, any settlement, to have any justification, must be a settlement that would be fair to the applicant company. Anyone who has watched the trend of operations in this country knows perfectly well that within a comparatively short time—certainly within the lifetime of many present to-day—that the pulp wood on the company's land in the basin of the St. Croix River will be practically, if not absolutely, removed. When that day comes that water power must be used for something else. Anyone who has followed the trend of electrical development knows that in the future electricity will be much more valuable than it is to-day. Then, when the company's lands are denuded of pulp wood, when the population of the two countries in that vicinity requires that electrical power and energy, the commission on conservation contends that it shall be made available for both, and that, in a general way, is the principle. In 30 years—certainly in 50 years—there will be no pulp wood left on the ground. That electrical power must be used for other purposes, and then the population of both countries should get equal benefits therefrom. The proposed remedy imposes no hardship on the company. For 30 years they have exclusive use of the water. All they pay will be less than a dollar and a half per horsepower, and all be put into the amortization fund, and require no further payment whatever.

MR. TAWNEY. Don't you think if this sinking fund were created for the purpose of paying for this dam, or if the company had to

pay a certain amount for the use of that power, that that cost would be added to the finished cost of the products they are now producing?

Mr. WHITE. Undoubtedly; but the amount per annum would be so small that, taken in connection with the investment by the company, the large value of their product, it certainly would not impose any undue burden on the company, and the payment of the whole thing would be postponed to a future date, a date not far distant.

Mr. TAWNEY. It would not be a burden on the company, as I can see it; it would be a burden on the consumers of the products of the company, because the increased cost would come out of the cost of the product.

Mr. WHITE. Yes; but the increased cost of the product must come out of the pockets of the shareholders. You can not increase the price of your pulp because it costs a little more to produce it than it did before.

Mr. TAWNEY. I do not know about that. The increased cost of production generally comes out of the fellow that consumes.

Mr. WHITE. If you should increase the cost of each and every pulp-wood factory in the country competing with the Spragues Falls Co., I would agree with you, but when the Spragues Falls Co. only is affected by this, then I do not.

Mr. MAGRATH. Is your recommendation in writing?

Mr. WHITE. Simply the bare statement of the recommendation of the commission. I prefaced it with a few remarks to show why the commission had arrived at this recommendation. The recommendation only runs into some dozen lines of typewriting.

Mr. GLENN. I suppose on the same principle you would have the company pay the State of Maine for the dam in the State of Maine?

Mr. WHITE. That is, of course, another question. The conservation commission is concerned only in the interests of Canada. If the State of Maine chooses to take a similar stand, that is another story. The commission on conservation is not actually engaged in endeavoring to conserve the interests of the State of Maine.

Mr. GARDNER. Supposing that the State of Maine should remove the portion of the dam lying within that State, what then?

Mr. WHITE. As far as the State of Maine is concerned, I consider that would be suicidal policy. I can not imagine they would do such a thing.

Mr. GARDNER. Do you consider it would be a more equitable principle if the company were to pay a royalty for the use of the water?

Mr. WHITE. No; for this reason: That if the Province of New Brunswick controls the dam, we are looking forward always to the time when the pulp wood has been removed from the lands of the company and from the basin of the St. Croix River, so that they are no more in a position to buy pulp wood from other proprietors nor get their own. Then we are looking forward to the day when the electrical energy will be used for other purposes altogether. Anyone who sees the way the country is being denuded of pulp wood will see what would happen. No company can get pulp wood in a small area, such as the Spargues Falls Co. is operating, for a long time. They are cutting more than the annual crop. They are using up their principal all the time, and just so long as they are using that principal one can see the end of their business is in sight. It

is only a question of years; it does not make any difference whether it is 10, or 20, or 30, or 40 years, it will come.

Mr. MAGRATH. Your contention is that the utilization of the other water powers on the St. Croix which might be made available for Canada is sufficient compensation?

Mr. WHITE. We contend that it should not be imported into the discussion at all; that it has no direct connection at all. Each water power should be dealt with on its own basis and the question of the Milltown Dam or Union Dam has nothing to do with the Grand Falls Dam.

Mr. MIGNAULT. Would you apply that principle to water powers entirely situated in Canada?

Mr. WHITE. Well, that is rather a sweeping question. The commission on conservation has always, with very little exception, advocated, without any exception, that the title to the water power should not be disposed of in fee simple; that no Province should part with the title; that all water powers of 50 horsepower and upward, all water powers of any great value, should be leased on the most liberal terms. It does not make any difference whether they were leased for a dollar a year, so long as the principle of ownership by the State is maintained. That is the basic principle. It imposes no hardship upon the operating company, and if the terms are made for a long enough period of years and made liberal enough, then there is no difficulty in raising capital for the development of those enterprises.

Mr. MIGNAULT. And you would apply that same principle to the part of the dam which is in Canada?

Mr. WHITE. Yes.

Mr. POWELL. What bothers me in respect of what you have said is the fact that the company claims to be proprietors of the land of which they are riparian owners. If the company is riparian proprietor, incidental to that proprietary right is the use to the center of the water for power purposes, or anything else, provided they do not diminish the quantity nor impair the quality of the water in passing it down to lower proprietary owners. If that be the case, what has bothered me is how you are going to work to get an annuity payable to the Government where the proprietary right is in these people themselves. Do you follow me?

Mr. WHITE. Yes; I see your point. For the simple reason that we contend that the company is there as a trespasser. Even supposing you contend, as you did yesterday, that the company is not trespassing on the soil of the Province of New Brunswick, the company is there as a trespasser on the lands of the State of Maine, because the essential requirement that they shall get the permission from the Department of War of the United States antecedent to the construction was not carried out.

Mr. POWELL. We must assume they are not a trespasser, because if they do not implement their title by getting an act of Congress the whole thing falls to the ground; they would lose what they have got, so that that would not affect it. Now, if you will follow me, the brunt of the whole business is the diversion of the water. The construction of the dam is only incidental to the diversion of the water, or largely. It is there for storage purposes as well. But the value in the whole undertaking is the diversion and head of the diverted water; that is clear.

Mr. WHITE. Yes.

Mr. POWELL. Now, bear in mind that under the treaty there are two applications, one from the Canadian constituted company and the other from the United States constituted company. Look at the application from the State of Maine company and get that in hand. Assuming that they complete the legalization of the work from the United States standpoint, then the Government of Canada, the Parliament of Canada, and the legislative authority of the Province of New Brunswick have not a thing to do with it; we are boss of the situation then; it is we. Those two great sovereign powers have seen fit to put us in the position in which we are above themselves. We can force the matter over the New Brunswick territory, and the treaty says that we shall give to the people in New Brunswick who are affected unfavorably by the work remuneration.

Mr. WHITE. Exactly.

Mr. POWELL. That does not apply to the construction of the dam. I am looking at the thing entirely from the American dam. When you come to look at the other application, of course they have got to deal with these people. Then, in regard to what Mr. Baxter was bringing forward the other day—in which I was rather inclined to disagree—it becomes very pertinent as to who is proprietor on the New Brunswick side. If the Government of New Brunswick is the proprietor of the bed of that stream, and these people are not, then we must award damages to the New Brunswick Government. If this company is, we do not award damages to anybody; but at the same time there should be some provision that if they cease to be proprietors, then the party who is privy to them in the matter of title must have the annuity. We may be called upon to fix it in that way, but as long as these people are proprietors they should not, I think, pay anything. You have to get beyond that.

Mr. WHITE. You can not expect me to embark on legal arguments. One reason why we put it in that form, where in the four corners of the Canadian act do they get a permit to divert the water?

Mr. POWELL. Dismiss the Canadian act, and so on, and center your mind on the fact that this is an application. We consolidate the two applications. Look at it from the standpoint of the American application. What Canada has done or may do has nothing in the world to do with that. It is in our hands, and ours alone, to grant that approval on such terms and conditions as to payment, or other conditions, as we see fit.

Mr. WHITE. The commission on conservation——

Mr. MIGNAULT. You must answer this question as if this dam were not constructed at all, but merely that there was an application before us for approval, because I conceive your principle would apply, if it is well founded, to a case where a new work is to be constructed, and the parties come before us asking our approval for their plans.

Mr. WHITE. I did not understand Mr. Powell asked me a question. I understood it was a legal disquisition. I am not a lawyer, and I decline to enter into an argument. We are looking at this thing from the standpoint of the engineer and the people of Canada, and we consider that no proposition has yet been put forward, except our own, which will do substantial justice to Canada or insure as equal benefit from the water.

Mr. POWELL. There would be the difficulty; who would get that benefit? So far as the benefit is concerned, the Canadian side is reaping the benefit, or should reap it, in the amount we should award as a compensation. If we award compensation, to whom does it go? It goes to the owners of the soil.

Mr. WHITE. Exactly; and we ask you to put that compensation in such form that it will insure equal benefits in that water to the people of Canada forever.

Mr. POWELL. But so far as that question is concerned, the equal benefit is a question between proprietors, and there is equal benefit as long as these people are proprietors on the Canadian side?

Mr. WHITE. No. If the water can be used forever, as it is to-day, entirely on the American side, practically wholly for the benefit of the citizens of the United States, then we contend Canada is not getting equal benefit from that water, and we say: "Here is a proposition whereby you can insure equal benefits to the people of Canada in the future, somewhat distant, it is true, but equal benefits to the people of Canada in the future, without doing any injustice."

Mr. POWELL. When you speak of equal benefits you mean simply the recognition of a proprietary right?

Mr. WHITE. I won't say no, and I won't say yes. It is not a question of proprietary right, but of benefit to the citizens of Canada or the United States.

Mr. POWELL. To whom would the benefit accrue? To the proprietor of the land, would it not?

Mr. TILLEY. To the person injured.

Mr. POWELL. It would accrue to the benefit of the proprietor of the land.

Mr. WHITE. In what sense?

Mr. POWELL. Because the right to the water is incidental to the proprietor of the land.

Mr. WHITE. Then, at the end of 30 years, the water would pass to the New Brunswick Government.

Mr. POWELL. There is the right of Canadian citizens there, and if these men were fools enough to go and give away that right to an American corporation, they must put up with it.

Mr. GLENN. Do I understand you to mean that notwithstanding who owns the land to the middle of the stream, that Canada is interested in a certain portion of the water and entitled to the benefit, irrespective of who owns it?

Mr. WHITE. Yes.

Mr. GLENN. It does not make any difference whether they own it or do not own it?

Mr. WHITE. Yes; that equal benefits accrue to the citizens of both nations, and we ask the commission to attach such conditions as we have outlined, to any agreement, to any assent to the application of the company.

Mr. GLENN. The American Government own the land at Sault Ste. Marie, and not the individual party. They were proprietors of the land, and that is a different case. This was a rental they were getting. You say that makes no difference?

Mr. WHITE. We do not contend the two cases are on all fours.

Mr. GLENN. You said it was a parallel case?

Mr. WHITE. Well, perhaps I should have said as a basic case, or perhaps I should have said it was a derivative case.

Mr. GLENN. The facts of the two cases should be the same if you are going to take one as a basic case for the other.

STATEMENT OF C. S. MACINNES, K. C.

Mr. C. S. MACINNES. The interest of the Dominion Government in the two applications which are before you is, as must necessarily be the case in applications under article 3 of the treaty, which are made by individuals or corporations, and not by the Government itself, an interest with regard to the application of the provisions of the treaty to the propositions before you and with regard to the administration of the treaty.

Now, the application of the treaty here has perhaps been somewhat lost sight of by dealing with these two applications as if they were one. There are two applications before you, gentlemen, as Mr. Powell has recently pointed out, with the result that in each of those applications a separate investigation of the facts has to be made, and a separate order will doubtless be made by the commission in due course.

Taking this application on the United States side, you will investigate and find whether the applicants have due authority, whether they are the owners of the property in question, and what is the obstruction which they propose to put in, and what are the rights of destruction which they seek.

In this case I understand the application on the United States side is, so far as has been shown, in order, except that the consent of Congress has not been obtained, but it is, however, this fact, which is perhaps the main fact, which has been lost sight of, that the extent of diversion of these waters to be granted to these applicants on the United States side is one which must be considered of itself and by itself and not in conjunction with any application made on the Canadian side. It seems to have been assumed, perhaps, that on these two applications here, involving all the waters of the river, the rights would be given, not to each of the two companies to divert one-half, but the right would be given to both companies to divert the whole. That is, of course, not the case, because those rights must be clear, and those rights can be no larger than are authorized by the treaty to be granted by this commission to the applicant.

The provisions of the treaty on the subject are perfectly clear that in dealing with an application—that is, dealing with the subject matter at one time, not dealing with subsequent applications at different times or at different parts of the river—the commission is to be governed by certain principles, and one of those principles is that each of the high contracting parties is to have equal and similar rights. That being so, and not dealing now with the other provisions of Article VIII, it would not be possible. I submit—and this seems clear beyond contradiction—for this commission to give either of these companies at this particular point more than equal and similar rights in the waters of the river at the particular place covered by the particular application. The only other provision of Article VIII

which would allow that to be varied or extended is the following paragraph:

The requirement for an equal division may, in the discretion of the commission, be suspended in cases of temporary diversions along boundary waters at points where such equal division can not be made advantageously on account of local conditions and where such diversion does not diminish the amount available for use on the other side.

So that it is perhaps conceivable that the application being made on the Canadian side or the American side—I am dealing with it as a matter of principle, regardless of the country interested—on such an application, if there were no objection presumably by the property owners, that not an absolute, but a temporary, right might be given to the applicant in that country to take, for the time being, part of the shore of that country. It would appear that, perhaps, this provision will have to be applied here in the manner I will indicate presently.

The other application before you is an application made—

Mr. POWELL. Before you pass that, your point is this: That the treaty limits us at any particular point to award only, or to give consent only, to the appropriation of one-half.

Mr. MACINNES. Undoubtedly.

Mr. POWELL. And that is as a permanent appropriation?

Mr. MACINNES. Yes.

Mr. POWELL. And if we do appropriate the whole, we must, under the other clauses of the section, limit the terms of the appropriation for a number of years.

Mr. MACINNES. As to the other 50 per cent?

Mr. POWELL. And that we have no right in the division at all to take into consideration a general marshalling of the waters of the river, but must confine ourselves to the powers of the point of development?

Mr. MACINNES. Yes. Whether the latter possibility is one that would be desirable to have I do not know, and I do not know where the chips might fall, and I do not care. I feel unembarrassed.

Mr. POWELL. That is the time to establish a principle.

Mr. MACINNES. And I think the treaty makers here intended that what was to be dealt with by this commission was the question of application of principles, and doubtless the elaboration of them, rather than the establishment of them, other than those contained in the treaty, and the treaty provision is in article 3, where it says:

No further or other uses or obstructions or diversions, whether temporary or permanent, of boundary waters on either side of the line affecting the natural level or flow of boundary waters on the other side of the line shall be made except by authority of the United States or the Dominion of Canada within their respective jurisdictions and with the approval, as hereinafter provided, of a joint commission to be known as the international joint commission.

Under article 8, where the approval of the commission is required, the commission is to be governed by certain fixed principles, and the language of it is that in passing upon such cases not dealing with a whole river or with a whole lake, but in passing upon a case which is brought before the commission and with which the commission is dealing the commission is to do what? It is to be governed by the principle that each contracting party shall have, each on its own side

of the boundary, equal and similar rights in the use of the waters hereinbefore defined as boundary waters.

Mr. TAWNEY. Where in the treaty do you find authority for the commission to impose a provision with respect to the division of water as a condition of the construction and maintenance of the obstructions referred to in article 3?

Mr. MACINNES. In the second paragraph of article 8.

Mr. TAWNEY. It says:

The high contracting parties shall have, each on its own side of the boundary, equal and similar rights in the use of the waters hereinbefore defined as boundary waters.

The commission may impose conditions with respect to the obstruction of these waters as contained in the last paragraph on page 15 and the top of page 16 and the following paragraph:

The commission in its discretion may make its approval in any case conditional upon the construction of remedial or protective works to compensate so far as possible for the particular use or diversion proposed, and in such cases may require that suitable and adequate provision, approved by the commission, be made for the protection and indemnity against injury of any interests on either side of the boundary.

And the next paragraph relates to changes in the level of the water and the effect of such changes.

Mr. TAWNEY. How can we under this provision in article 8, which is the only article that makes any provision for imposing conditions, make an order with respect to the division of the water itself?

Mr. MACINNES. The language you have just read deals with conditions. The language I was calling attention to is even stronger than that, it seems to me. It is the one which contains a principle, not as a theory but as stated in the first paragraph of article 8, in which the commission is given jurisdiction to pass upon the case, and it proceeds to state:

In passing upon such cases, the commission shall be governed by the following rules or principles which are adopted by the high contracting parties for this purpose.

Now, as to such rules or principles, no discretion is left to this commission, as is done in the case of conditions, but it is an absolute rule or principle which must be imposed by the commission, because it is the basis of the agreement between the two parties.

Mr. MIGNAULT. I quite follow your argument. You say that the principle is that each country shall have an equal right to the use of the water, but that in cases of temporary diversion it points out where such equal division can not be made advantageously on account of local conditions that the commission may authorize a temporary diversion of the whole water, including the share of the other country.

Mr. MACINNES. Quite so. Now, in dealing with this point, if these two applications are dealt with, involving these principles, I would ask the earnest consideration of the commission on that point, as to whether the language of the treaty does call upon you, in imposing that principle which is more than a condition, to deal only with the portion of the boundary waters before you on the application or applications, or whether it enables you to deal with the whole watershed in question; because the question is one of very great importance—far greater, with all respect to the applicants, as they will

naturally admit, than this particular application before you, involving large sums of money, as it does. The reason it has appeared to me that that language is limited—although I am not urging it as being the only or necessary construction of the treaty—to the waters covered by the application, rather than generally speaking, is that otherwise it might be difficult to see where the limitation of what was to be constructed by you was to be placed, because the language is:

In the use of the waters hereinbefore defined as boundary waters.

Now, if you come to deal with one part of a river as a set-off against another part of the river, it might perhaps be said that you can deal with a river in British Columbia as setting off a division of a river in New Brunswick. I do not think that could possibly be contemplated by the treaty makers that you were to take all of the vast boundary waters which have been referred to, and, in dealing with each case, to consider how the balance stood between the two countries. If that is not so, what ground is there for confining the limitation to even the whole of one watershed, as compared with the particular watershed with which you are dealing? But it will be for this honorable commission to consider, in view of all the provisions of the treaty, what was contemplated by the high contracting parties in establishing this doctrine of similar rights as the rule to govern.

Mr. TILLEY. Supposing your contention is correct, and that only half of the water can be permitted to be diverted by this commission on the Maine side, what follows upon that? That we, as the owners of the other half—we are the owners of the other half—must let it tumble over the dam? It is ours. We do not have to use it for Canada. Is it not an absurdity to say this water can not pass through the dam, because we own both sides?

Mr. MACINNES. No; I think not. As to the other 50 per cent which is the other country's water—

Mr. TILLEY. No.

Mr. MACINNES. As to the other 50 per cent—

Mr. TILLEY. Assume it is ours.

Mr. MACINNES. As to the other 50 per cent, the approval of the commission can only be temporary. Now, in dealing with what Mr. Tilley said, it seems to me the situation is this: As to the question of ownership, the ownership on either side of the boundary belonged, of course, to the Province or the State in question, or to such individual or corporation as has derived property rights from that State or Province. Those rights which it holds it holds, of course, in accordance with the grant given to it. We will assume that the grant is in fee and is absolute. On the other hand, however absolute that grant may be, the situation in both countries is that that property right is subject, not to confiscation, but to expropriation by the Province or State which made that grant; take these individual companies, either the Canadian company or the United States company, that its rights might be taken on payment of due compensation by the Government which granted its rights originally. The situation, surely, must therefore be, if that were the case, the Government interested having acquired that property would now find itself face to face with another country which could say, "It is true you

have that property right, but you can not exercise what flows from it because an International Joint Commission has seen fit to take away that right attaching to the property, and give it, not temporarily, but permanently, to the other country." In other words, it seems to me perfectly clear that that treaty establishes rights as between the two countries, but it does not affect or alter property rights or property laws in either of the two countries. Have I made myself clear?

Mr. TILLEY. Yes; if the result of your argument means this: That the commission might say that the diversion of the whole of the water may take place, so long as the owner of the Canadian side is a consenting party. If that is the result of what you are saying, then I appreciate the point you are making, that it can not take it away forever, but that so long as the owner on the Canadian side consents to its going over that that will be treated as a temporary diversion.

Mr. MACINNES. Yes; you have stated my point perfectly clearly.

Mr. TILLEY. Then I appreciate the point.

Mr. MIGNAULT. But if the party on the Canadian side consents forever, then the diversion will continue forever.

Mr. MACINNES. Yes; but the only party we know of that would consent forever is probably a legislature or the Crown, as the case may be.

Mr. MIGNAULT. We have here a Canadian company applying for leave to divert, I presume, one-half of the waters, and an American company applying for leave to divert the other half. While it is possible that the State of Maine and the Province of New Brunswick might expropriate each its half of this property, and destroy the dam and restore the property to natural condition, it does not alter the fact that so long as these extraordinary powers of eminent domain are not exercised the right of ownership is vested in the party who has obtained the right to divert the water, and so long as that party agrees this diversion goes on indefinitely.

Mr. MACINNES. Yes; quite so, but just so long, and no longer, the consent is valid, but it is subject to a defeasance.

Mr. MIGNAULT. But even if we say that that diversion can take place, and put no condition of time on our approval, nevertheless the Government of each country, in exercising its right of eminent domain, can retake the property on paying the proper compensation.

Mr. MACINNES. That is what I mean.

Mr. MIGNAULT. So that it amounts to this, that we can give a conditional approval without affecting in any way the rights of either the State of Maine or the Province of New Brunswick.

Mr. MACINNES. As it happens in this case, we have not to consider the State of Maine, because the whole diversion is being made on the United States side; but if the Province of New Brunswick, for reasons best known to itself, in the interests of citizens of New Brunswick, should be bound to acquire the property on the New Brunswick side that it would not be face to face with a deprivation of the rights that would naturally flow from the exercise of its own right by reason of some order of the commission.

Mr. TILLEY. Would it follow from your argument one step further that the owner on each side could come here and consent to the diversion of his half, diverting them both through the same canal?

What is there to require that diversion to go through his own country? What is there to prevent the owners both saying, "We want both diversions to go in the same canal"?

Mr. MACINNES. I know of no property right in the individual which would enable him, against his own country, to take the water of his own country and send it to another country.

Mr. MIGNAULT. But the right of New Brunswick still remains. I say the Province of New Brunswick might expropriate the land; but you would say that, inasmuch as the water continues to flow down that canal on the American side, that the Province of New Brunswick would be powerless to appropriate its share in the water?

Mr. MACINNES. Yes. I am not quite clear whether you are taking exception to my remarks or agreeing—

Mr. MIGNAULT. I am seeking for light.

Mr. MAGRATH. The doctrine that you gentlemen appear to be enunciating may be legally sound, but I do not like it.

Mr. TILLEY. I am not enunciating any doctrine. I am asking a few questions.

Mr. MIGNAULT. Perhaps the remark of the chairman might refer to the possibility that I should be enunciating a legal doctrine, but I am seeking for light.

Mr. GLENN. I want to read the section relating to equal division in Article VIII. It is as follows:

The requirement for an equal division may, in the discretion of the commission, be suspended in cases of temporary diversions along boundary waters at points where such equal divisions can not be made advantageously on account of local conditions and where such division does not diminish elsewhere the amount available for use on the other side.

I think you will admit in case we find it can not be divided, on account of local conditions, and that such diversion does not diminish elsewhere up and down the river the amount for use on either side, that then we can suspend that rule temporarily.

Mr. MACINNES. Yes.

Mr. TILLEY. Completely suspend it.

Mr. GLENN. On account of the fact that we have found that conditions make it impossible to apply.

Mr. MACINNES. But you would suspend it in cases of temporary diversion?

Mr. GLENN. Yes. I think we should have some voice in saying how long that temporary diversion should be. I think the diversion refers to being used for this particular purpose.

Mr. MACINNES. The article says:

Where such equal division can not be made advantageously on account of local conditions.

If the local conditions become such that there is no reason why the development should not be made on the Canadian side for 50 per cent, instead of the whole being on the American side, you have a change in the local conditions. And there is the physical condition which makes it impossible to use it for certain purposes.

Mr. GLENN. The witnesses swore it was impossible to make a canal on the Canadian side, and it would cost \$300,000 more than on the other side; and, furthermore, the powers below could be used to give as much power as those falls.

Mr. MACINNES. True; and if it were not for that fact you could not apply this provision.

Mr. GLENN. What do you mean by temporary? How long does that mean? A week or month or year?

Mr. MACINNES. That would be found in the facts in any particular case before the commission as to what the requirements were, or it might be limited to the time when, and until which, the other country might require it for its own purposes.

Mr. MIGNAULT. I understand your contention is this: That this diversion could be authorized until such time as the other country should claim its share in the water.

Mr. MACINNES. Quite so.

Mr. POWELL. Might it not be that the term is to be constructed in connection with the application and the purposes of the application?

Mr. MACINNES. Quite so. I am appearing before the commission and dealing with this particular fact as one desiring to assist the commission, as far as I can, in the interpretation of the provisions as applicable, not merely with regard to this case but with reference to any case that may arise.

Mr. GLENN. I am simply asking for light.

Mr. MIGNAULT. I wish to be distinctly understood as not expressing an opinion. The point is too important to express an opinion, but I am seeking for light.

Mr. MACINNES. I would like to be assisted in any endeavor to throw light on the subject. In connection with the remark that fell from the lips of the chairman, that he did not like the proposition, as one would only dislike or like a certain thing as leading to certain results, I would like to know the results which would follow.

Mr. MAGRATH. The doctrine, as I understood, that was being advanced was that the Province of New Brunswick could destroy Canadians' rights and take the property from them and retain the water in Canada.

Mr. MIGNAULT. It could by expropriation, undoubtedly.

Mr. TILLEY. No.

Mr. MACINNES. That would not be so by reason of anything this commission would do, or could do. It would only be by reason of expropriatory legislation which may exist in either of these countries, and if the citizens of these countries want that kind of legislation, they get it, and in most countries they have got it, and in some cases it is most unjust.

Mr. TAWNEY. In some cases they get it, whether they want it or not.

Mr. GLENN. Do you think it makes any difference, so far as our consideration of this matter is concerned, as to whether this company owns the land entirely or not to the middle of the stream. That has been advanced two or three times by different parties. Supposing we find, as a matter of fact, that by their deed they went to the middle of the stream, does that make any difference, according to your idea, as to what rights we should give them?

Mr. MIGNAULT. It should not make any difference, since either country can exercise the right of eminent domain and expropriate the bed of the river; but I am seeking for light, as I said before, and I do not wish to disturb the argument, and I must apologize for so doing.

Mr. MACINNES. I am only too glad to be interrupted, and I wish to understand the point to which the inquiry was directed. My

answer to Gov. Glenn's question would be this: That before the application is in order it must be established either before or concurrently with, or after, as a condition subsequent to approval of the commission, that the applicants have the necessary rights on which to found their application, and one of those, of course, would obviously be the property right in the land on which the work was to be constructed. In other words, A. B. could not come before this commission in connection with an application to construct on the property of C. D., or, if he did, the order which you gave him would be subject to his subsequently acquiring the property of C. D., because the situation otherwise would be that the wrong parties would appear before you. Have I made myself clear?

Mr. GLENN. Yes.

Mr. MACINNES. In order to be an applicant you must be an owner. In this case, in view of the fact that the applicants are not vested with full authority in connection with the United States applications, if the commission thinks that the application of the Canadian company is not perfect, it may allow them to put themselves in a proper position, not necessarily now but at a subsequent date. Dealing with the New Brunswick side of the case it is, of course, obvious that the application of the Canadian company will not be complete until it has been established either as a matter of law or by agreement between the applicants and the government of New Brunswick that they have either an absolute fee or a license to erect these works on the land in question.

Mr. GLENN. You are speaking for the Dominion of Canada?

Mr. MACINNES. Yes.

Mr. GLENN. And they have given a charter authorizing the construction of the dam, and in addition to that these people have bought their land and own to the middle of the stream. Now, has the Dominion of Canada any further interest in this matter to prevent the execution of this charter?

Mr. MACINNES. The position of the Dominion Government must be, subject to differences in constitution, the same as the position of the United States Government. Our position is in reference to the treaty obligation as we represent one of the high contracting parties.

Mr. MIGNAULT. Your position is representing one of the high contracting parties quo ad the treaty.

Mr. MACINNES. Yes. Another position is that it gave the charter, as authorized to do under the British North America act, to this company to do certain things. That does not vest any property rights. It merely creates a corporation, which had the power to do certain things, if it takes the necessary steps to enable it to do it.

The Dominion Government is further interested in what might be termed Federal matters, just as the United States Government is, such as navigation, fishery, and the like. So far as that is concerned I do not know that anything that might be required to be done by either country in respect to an obstruction in a river which does not affect the flow on the other side, could not be subsequently done, if necessary. But in all these cases it has been thought well for both Governments to come before the commission and state the full extent of its interests in navigation, fisheries, or anything that it might subsequently wish to do, although it may not be necessarily absolutely

bound by the terms of the order in respect to a matter which did not affect the flow on the other side at a later date. So that is the reason why evidence was given here in regard to the fishery matter. I am not clear whether a fishway will be absolutely necessary, so far as I know. If it is necessary, I presume any order this commission might make would not deprive the Dominion Government of the right to order the fishway to be made if it did not affect the fishway on the other side. But it is just as well for this commission, as the clearing house for information, to have all the facts before it on these subjects. The interest of the Dominion is threefold—the treaty interest, the fact that it gave a charter to one of the contracting parties, and the fact as to the fishery rights.

Mr. TAWNEY. What do you say in regard to the interest of the Dominion Government in the matter of international regulation of these works, if they are maintained as now constructed? I am referring particularly to the statement of Mr. Stewart on that subject?

Mr. MACINNES. As to that, I would naturally be governed by the views of Mr. Stewart, as chief hydrographer. If he considers that, from an engineering standpoint, that some kind of control is necessary, I would accept his views, and as to the extent to which they should be applied, the commission would decide. For instance, in a small river you would not have top-heavy regulations, so to speak. The regulation would be in proportion to the interests at stake, and the regulation might perhaps, in such a river as this, be by written directions and by an occasional inspection. I was going on to state that, so far as property rights are concerned, the situation in Canada is the same as it appears to be in the United States, that the property belongs to the Province or State, not to the Federal Government, and one must not be misled by the fact that in the Sault Ste. Marie case it was the Federal Government that was dealing with the dam, because the earlier history showed that the Federal Government came into possession of the dam by the exercise of eminent domain and by an act of Congress authorizing it to be expropriated in the interests of navigation, and you will remember it was the Supreme Court of the United States that decided that, although required for navigation, the water might be leased by the Federal Government for the purpose of power.

I do not propose to deal with property interest, because the attorney general of New Brunswick is here, and he will, of course, take care of the property interests and the beneficial use that might hereafter flow from them, so far as New Brunswick is concerned. The Dominion Government, with us, is not obligated to take charge of the protection of property interests of Provinces, and would not, naturally, interfere with their views, but would let them present their own views.

Mr. MAGRATH. Mr. Baxter made his statement yesterday, and I understand that that is all he wishes to say.

Mr. MACINNES. I do not think it is necessary for me to add anything further.

Mr. WYVELL. I am going to ask Mr. Koonce, who has had such wide experience in these matters, to make any statement he desires to make, and I am sure I will adopt his statement. If I care to differ with him, I will make a statement later.

STATEMENT OF MR. GEORGE W. KOONCE.

Mr. KOONCE. Mr. Chairman and gentlemen of the commission, I did not come prepared to present any formal argument, and, after the wide discussion precipitated by Mr. MacInnes, who has even ventured into the metaphysics of the case, I scarcely know how to approach it. Now I say this in a complimentary sense, and do not mean to imply that he has obscured the issue in any way, as it is impossible for him to be other than illuminating, and I know of no one who can see deeper, think sounder, or talk clearer, than my good friend Mr. MacInnes, for whose unfailing courtesy to me since we have been appearing before this honorable tribunal I take this opportunity of expressing my lasting appreciation. I merely want to state the position of the Government of the United States on the questions before you.

As you may know, the authority and jurisdiction of the Federal Government over a question of this kind comes from the commerce clause of our Constitution, which gives Congress the power to regulate commerce with foreign nations and among the several States. The navigable waters on the boundary of the United States are natural highways of commerce, and consequently they come under the regulating power of Congress. The St. Croix River, under the definition laid down by our Supreme Court, is a navigable water of the United States, although the navigation is limited; it was, possibly, in its natural state capable of useful commerce, and it is always possible by the expenditure of money for Congress to convert a stream, however much it may be obstructed by falls and rapids, into an artificial highway by the construction of slack-water improvements, such as locks and dams. Congress has never undertaken to improve this portion of the St. Croix River, but, nevertheless, the acts of Congress which have been passed for the protection and conservation of navigable waters apply to the river, irrespective of any international question whatever. By the act of March 3, 1899, it was made unlawful to construct a dam across any navigable water of the United States unless the consent of Congress had been previously obtained. It seems that the proprietors of this dam were unaware of the existence of the statute, and they built the dam without obtaining authority of Congress. After the dam was constructed an application came before the War Department for approval of plans—and I might say that this statute, in addition, requires not only the consent of Congress, but that the plans for such structures shall have been approved by the Chief of Engineers and the Secretary of War before construction is commenced. There was no objection to approving the application, so far as we could ascertain, from the point of view of navigation, but, owing to the provisions of that statute which had not been complied with, the department was unable to give any approval to the plans presented. The International Joint Commission, having jurisdiction through the treaty of 1909, were informed of the position of the department, and advised that the department would interpose no objection to appropriate action by the commission. I might say here that the interest of the Federal Government in the river is primarily that of navigation, all property rights in the shores and bed of the stream being derived and held under State laws.

Mr. MIGNAULT. That would apply to the fisheries also.

Mr. KOONCE. Yes; we have Federal statutes on the subject of fisheries.

Mr. MIGNAULT. What is the position of the Federal Government as to the fisheries in this river?

Mr. KOONCE. There is a law creating what we call the United States Commissioner of Fish and Fisheries and defining his duties. There are also statutes requiring that all dams across navigable waters shall be provided with practical fishways for the passage of fish.

Mr. MIGNAULT. So that the United States has an interest in the placing in this dam of a suitable fishway.

Mr. KOONCE. Yes; and any authority which Congress might give in relation to the dam, either by legalizing it or authorizing it in the first place, would contain a provision that the proprietors of the dam shall insert therein such fishways as the commissioner or his official superior, the Secretary of Commerce, may prescribe.

Mr. MIGNAULT. Similar to the Canadian act.

Mr. KOONCE. Yes; and our laws, I suppose, are the same in regard to property rights as those of the Dominion of Canada. The Federal Government has the dominant right in this river on account of navigation.

Mr. MIGNAULT. Who owns the bed of the river?

Mr. KOONCE. The State of Maine or its grantees. As soon as a Territory becomes a State, there immediately vests in that State all property rights in the shores and beds of all navigable waters within its borders. The original 13 States had these rights by virtue of their individual sovereignty, and when the Union was formed and the Constitution adopted the rights were reserved to them and to all new States. I should add, however, that property rights in the bed of a navigable stream are subject to the paramount easement or right of the Federal Government to improve, protect, and conserve navigation.

Mr. TILLEY. It has been said that property owners on the Detroit River own the land to the center of the river.

Mr. KOONCE. That is fixed by the laws of the State.

Mr. MIGNAULT. That is similar to the provision in our law.

Mr. KOONCE. Divers laws prevail in our States. Some have enacted laws limiting riparian ownership to high-water mark; others limit it to low-water mark, but probably in most of the States such ownership extends to the center of the stream.

Mr. POWELL. That is your common law?

Mr. KOONCE. Yes; and where there is no statute to the contrary the common law prevails.

Mr. MIGNAULT. And the United States has no interest in that?

Mr. KOONCE. No. If we were to undertake to construct that dam which the St. Croix company built we would have to acquire the land needed for the structure, including flowage rights and other appurtenances, in accordance with the laws of the State of Maine.

Mr. MIGNAULT. But you could force the owner of the land to sell?

Mr. KOONCE. Yes; we could condemn it for navigation. After once acquiring it for navigation purposes, we could use it for other purposes, as the courts have decided that the primary use, which is

navigation, carried with it other uses; but the Federal Government now has only the right of navigation, and while there is no doubt the St. Croix is a better river for power production than for navigation, nevertheless, the right of the United States is paramount to the right of the State, or any grantee under the State, to the shore and the submerged area.

Mr. MIGNAULT. What is the practice? If Congress were to authorize the diversion and the construction of a dam in a navigable river, would it be subject to the right of the United States to step in, when it saw proper in the exercise of its control over property, and expropriate the property?

Mr. KOONCE. Yes; and that right is always reserved by Congress in authorizing structures of this kind. If Congress should declare that the St. Croix should be improved for navigation, and appropriate money for its improvement, that would carry with it the right to expropriate or purchase, by agreement, the lands and other property needed for the purpose of the improvement, and, having once constructed or acquired a dam for navigation purposes, the head of water created by it would be the property of the United States, and they could lease it or sell it to parties who wanted to use it for electrical production or otherwise. But this dominant power of the Federal Government of which I have been speaking does not come from the fact that the use of the river may be more valuable for navigation than anything else, but simply because where two Governments have the right in the same thing it follows that the superior Government right must be paramount to the inferior.

Mr. MIGNAULT. And the superior right here is the United States Government?

Mr. KOONCE. The Federal Government. This matter, like many others, when you first look at it, may appear to have a great many difficulties connected with it, but it seems to me the proposition is very simple, so far as the action of the International Joint Commission is concerned. You find that this dam does not obstruct navigation; that it provides ample facilities for such commerce as the river is capable of; consequently you could find no objection to it on that score. No fishways have been provided; but they can be provided, and it is within the power of Congress to require this to be done on our side of the line, and I assume that a similar law exists in Canada; so that there could be no objection from that standpoint. There is a question about division of water.

Mr. POWELL. Before you go to that, as I understand it, you, representing the United States, raise no point whatever on the ground that Congress has not yet approved of it?

Mr. KOONCE. None whatever. I might say that the condition here is not unusual. Similar cases, where structures have been built in or across navigable streams without compliance with the Federal law of March 3, 1899, are not infrequent in our practice; and in such cases, if the parties concerned show that they have acted in good faith—without intention to evade or violate the law—and no material injury to the public interests has resulted, they are usually granted appropriate relief by legislation or otherwise. In this particular case, I see nothing reprehensible in the fact that eminent counsel for the power companies overlooked the requirements of this statute

as well as the provisions of the treaty, both of which have been in existence relatively but a short time. The St. Croix is a stream of little value except for the production of power, and for a hundred years it had been the custom to build dams across it under State authority alone, which was sufficient prior to the assertion of Federal control. Counsel simply followed the custom without realizing that there had been vital changes in the law; and you can readily understand that, while a man may be very learned in the law, the statutes are so numerous that a few may escape his attention. The longer I live the more convinced I become of human fallibility—of the limitations of human intelligence—and whenever I am inclined to be boastful of my attainments—

Mr. POWELL. You have the utmost liberty to go after the legal profession. Proceed.

Mr. KOONCE. I always recall the Biblical story of Balaam and the ass on that noted journey to the city of Jericho, which I have no doubt is familiar to you—or at any rate to my good friend Mr. Powell, whose Biblical lore is most comprehensive. You will remember that Balaam was a seer and a philosopher—yet the angel in the road was unseen by him, though perfectly visible to the lowly beast on which he rode; which goes to prove that the wisest of us may overlook something, and that what is perfectly clear to the ordinary mind may sometimes be obscure to the wisest.

Now, taking all these things into consideration, the fact that these applicants are now willing to comply with the law; that they are now willing to do everything that either nation considers necessary for the perfection of the project, and that they have announced their purpose to apply to Congress for the necessary curative legislation, I think the commission would be justified in completing their consideration of the application, and, representing the United States, I make no objection—because of the absence of congressional authorization—to your favorable action at this time. This brings me to the question of the division of waters.

Article VIII of the treaty provides that—

The high contracting parties shall have, each on its own side of the boundary, equal and similar rights in the use of the waters hereinbefore defined as boundary waters.

This provision is perfectly plain and I apprehend that there is no difference of opinion as to its meaning. Each country is to have *equal and similar rights* in the use of the waters of the St. Croix River, and this being fixed by the treaty itself, the commission has no power to change it. If an equal division of the volume of water is necessary to secure equal and similar rights to each country such a division must be made. The commission is, however, empowered by the treaty to suspend the requirement for an equal division in cases of *temporary diversion* along boundary waters—

Where such equal division can not be made advantageously on account of local conditions, and where such diversion does not diminish elsewhere the amount available for use on the other side.

Now, I do not concur with the learned counsel for the Dominion Government, Mr. MacInnes, in his interpretation of this provision of the treaty. I do not think that the eminent statesmen who formulated this treaty had in mind the question of *time* alone, or that,

by the phrase "temporary diversions" they meant solely the abstraction of water for an hour, or a day, or a year; but my idea is that they had in view the *character* of the diversion rather than its *duration*. Any diversion similar to the one under discussion—where the water is taken from the natural channel of the river, at a particular point, carried around a fall or rapids, and again deposited in the river—is a *temporary diversion* within the meaning of the treaty.

Mr. MIGNAULT. That is not a temporary diversion. It is a permanent diversion, so far as diversion is concerned.

Mr. KOONCE. You are dealing with the water of the river, not with its bed, and the water is only temporarily withdrawn.

Mr. MIGNAULT. Your construction is that, provided the water diverted is returned to the river, it is always a temporary diversion?

Mr. KOONCE. Yes. Where you build a canal for navigation, and fill it with water from a natural stream, or where you construct a flume or ditch and draw off the water to irrigate property, and take water from the river for all time, that is a permanent diversion.

Mr. TAWNEY. Then, where you divert the water and return it to another point in the river, you say that is merely temporarily diverted from its regular channel?

Mr. KOONCE. Yes; and that is what I understand these parties to mean by the use of the word.

Mr. MIGNAULT. There can be no permanent diversion unless that water is taken away completely?

Mr. KOONCE. No.

Mr. MAGRATH. They have no power to take water permanently away, and why should they distinguish?

Mr. KOONCE. Each nation has the right to a permanent diversion of one-half if approved by the commission.

Mr. TAWNEY. Your idea is that the word "temporary" here applies to water diverted at one point and returned to the stream, rather than to the time that the water is taken?

Mr. KOONCE. Yes

Mr. MIGNAULT. Temporary means a certain time. What you say would, to my mind, rather represent a local diversion. You would say, "I will divert at a point 10 miles from the mouth and return the water 5 miles below the mouth," and that would be a temporary diversion, although it would continue for all time.

Mr. KOONCE. I am speaking of this diversion at this particular point. Here is a particular point where these parties take the water from the river, carry it through their flumes and penstocks and deposit it back in the river within a very short distance; every drop comes back. I do not think you can call that a permanent diversion.

Mr. MIGNAULT. So far as a diversion at all, it is a permanent diversion.

Mr. KOONCE. In the sense of the water coming up and around at this point, it is permanent, but the diversion from the river is not permanent, it is temporary.

Mr. MIGNAULT. There is a diversion, and it exists for all time. It seems to me it is immaterial whether the water goes back or does not go back. There is a diversion. I am not expressing any opinion.

Mr. POWELL. You used the word "permanently." Supposing a man were following the track, and he left the track for a short time,

in that sense it would be temporary, referring to time. Yet in that instance it means place. The idea there in the use of the word "temporary" in place. It is not time at all. Your argument is applying that to the water.

Mr. TILLEY. It is out of place temporarily and gets into place permanently later on.

Mr. MIGNAULT. There is a period between the time when the water goes out and comes back, and you call that a temporary diversion.

Mr. MAGRATH. Where in the treaty can we permit a permanent diversion?

Mr. KOONCE. You have nothing to do with that, because the treaty deals with that.

Mr. MAGRATH. Where?

Mr. KOONCE. Oh, I misunderstood you. Article III is the comprehensive authority you have for approving the diversion of water, either a temporary or permanent diversion. Under the provision we are discussing you can authorize a temporary diversion at certain points under certain conditions, without requiring an equal division of water at those points.

Mr. POWELL. I must congratulate you on the ingenuity of your argument, whether I agree with it or not.

Mr. MACINNES. Metaphysics.

Mr. GLENN. His argument relieves us of the necessity of saying what "temporary" means.

Mr. KOONCE. I have merely suggested for your consideration, that this particular diversion is a temporary one within the meaning of this provision.

Mr. POWELL. If you look at the closing part of that article, do you think your argument is supported by the words there? It is a very ingenious suggestion, I must admit. The closing paragraph reads:

The requirement for an equal division may, in the discretion of the commission, be suspended in cases of temporary diversions along boundary waters at points where such equal division can not be made advantageously on account of local conditions, and where such diversion does not diminish elsewhere the amount available for use on either side.

That last clause goes a long way to support your contention.

Mr. TILLEY. That supports it.

Mr. POWELL. If the idea is that that water is running in the stream, and you temporarily divert it, that is all right, provided you do not permanently take it away from the stream.

Mr. KOONCE. That is the idea. And I would also suggest that this provision "equal and similar rights in the use of the waters hereinbefore defined as boundary waters" entirely is not limited to diversions and things of that kind? It means the running of boats on the water and other uses of the stream that does not require any diversion at all. It means any use you can put the water to—navigation, or anything else—that with regard to these they are to have equal rights. It does not necessarily mean you should divide the water into two parts, at any point, if equal and similar rights in its use can be otherwise obtained.

Mr. POWELL. That clause below in regard to equal division rather knocks you out.

Mr. KOONCE. No; I do not concede that.

Mr. MIGNAULT. Every time I take a drink of water out of the river I divert the water out of the river, and permanently do so.

Mr. KOONCE. That is true; and according to the Conservation Commission you take some of the public rights from that river without making proper compensation. I was going to enlarge on this question of equal and similar rights. That does not necessarily mean diversion. It may be other rights that the two nations have, and they may use this river without having occasion to divert it, but when they come to divert it they must take into consideration the physical characteristics, and if they undertake to develop a water power on a river that is only 100 feet wide they necessarily must have a dam extending clear across the river. It is an impossibility for anyone in the United States or Canada to divert and use one-half of the water in the St. Croix River for power purposes without damming up the whole stream and diverting the entire flow. Whether it is diverted on the Canadian side or American side, is an economic question, and it has been shown that this diversion was made on the American side because the physical characteristics are such that it makes it too costly to divert the water on the Canadian side. Now, Mr. Chairman, I submit that this diversion was made at a point, and under conditions, where an equal division of water could not be made advantageously, and this meets one of the stipulations prescribed by the treaty. Concerning the other one—that the diversion does not diminish elsewhere the amount available for use on the Canadian side—you have the positive testimony of the distinguished engineers selected by the commission to investigate and determine this very question. It was stated by Maj. Pope that there is enough undeveloped water power along that section of the St. Croix River to offset the development of these companies, and that there are sufficient sites where the power could be economically developed. This statement was indorsed by Mr. Stewart, the Canadian engineer, and you will remember that Mr. Hardy, the consulting engineer of the applicant companies, who has known and studied this part of the river for many years, was positive in his statement that there still remains undeveloped in the river a possible additional power greatly in excess of what would be required to make an equal division between Canada and the United States. All of these gentlemen were equally positive that the existing plant and power development does not prevent the accomplishment of that provision of the treaty with respect to equal and similar rights in the use of boundary waters, and I feel sure that the commission will accept their judgment as conclusive on this point.

And now, just a word regarding the legal status of these applicants from the point of view of their property rights—

Mr. POWELL. I do not think it is worth while wasting time with that, because we have already decided that.

Mr. KOONCE. No; I quite agree that it is not material, but I was about to say that I do not think you would have a right to act upon the proposition, unless some color of right is shown—

Mr. POWELL. We are satisfied of that.

Mr. MIGNAULT. We will admit obvious conclusions and obvious facts.

Mr. KOONCE. Well, I hope you will acquit me of any purpose to illustrate the obvious or enlarge upon the unnecessary, but I was not aware that you had reached a decision. Counsel for Dominion Government have argued this question quite extensively, and the distinguished attorney general of the Province of New Brunswick, Mr. Baxter, as well as the able representative of the Canadian Conservation Commission, Mr. White, have devoted considerable argument to this phase of the matter—in fact, the essence of the objections to your approval of the application, which these gentlemen have urged so persistently and so interestingly, is that the applicants have not secured the necessary property rights in the waters of the river, or in the submerged soil on the Canadian side, and that in this respect they are trespassers on the rights of New Brunswick. I am glad to understand that you do not consider this material to your action, and I think you have decided wisely. The commission can not be expected to examine land titles, or to determine disputed questions of governmental grants; it is sufficient if applicants come, as they do in this case, with color of title, with a *prima facie* showing of authority. And right here—for the purpose of strengthening you in this view, of buttressing the decision you have reached—I can not refrain from quoting a gentleman whose opinion I know you will appreciate. I refer to the eminent jurist, Mr. Casgrain, a former member of this tribunal, and now the honored postmaster general of Canada. In the case of the St. Marys River this very same question of property rights came up, in connection with the application of the Algoma Steel Corporation; the Province of Ontario made the same point against the steel corporation that New Brunswick is now making against the present applicants; and in relation to that Mr. Casgrain says:

Some question was raised during the argument as to the right of these applicants, in view of the position taken by the Ontario Government, to take the water which belongs to the Province and build upon the land which is also in the provincial domain. With that question we have nothing to do. This does not mean, however, that a party may appear before the commission and by obtaining an order of approval of its plans in the case of a diversion or obstruction take the land of another without conforming to the common law of the country; so, in the present instance, before the applicant can use the approval which it obtains from this commission it will, if the necessity of the case arises, be obliged to treat and settle with those whose property rights it encroaches on.

I think I need say no more, Mr. Chairman. Your approval, if given to this proposition, will simply put these people in a position where they will have to deal with the Congress of the United States to get Federal approval, and with the Dominion of Canada or the Province of New Brunswick to get whatever additional rights they need over there.

I thank you for the patient hearing you have given me, and, as this may be my last official appearance before you, I wish to acknowledge my obligation for the kind and indulgent consideration you have always accorded me, and to assure you of the continuance of my sincere personal esteem for each of you.

Mr. TAWNEY. I have here a very clear and concise statement of the law on the question of the property of beds of streams in the United States, in an article written by Rome G. Brown, Minneapolis, who is one of the leading authorities on the subject of water

rights in our country. There are only three paragraphs and I will read it and have it inserted in the records. It is as follows:

(1) That the authority for Federal control of fresh navigable streams and waters in the United States, which at the same time defines and limits such control, arises solely from that power which has been expressly reserved to the United States by the Federal Constitution—the power to regulate commerce between the several States and foreign nations.

(2) That this power of control was expressly reserved to the Federal Government by the States originally adopting the Federal Constitution and by all States since admitted under that Constitution; and, subject to this specific power so reserved in the Federal Government, there has passed over to those States, upon their entry into the Union, all powers and interests, whether of ownership or of control, now or formerly belonging to the Federal Government, in the beds and waters of such navigable streams; and the Federal Government has since retained, and retains, either as against any claim by a State or by an individual riparian, or both, only the specific paramount right of control for the specific and limited purpose of commerce—that is, of navigation. Moreover, this Federal power of control is purely a sovereign power of control for a specified public use and does not include, and can not be extended to, any element of a proprietary right or interests.

(3) That, subject to this purely sovereign right of control of navigation, all right, title, and interest, sovereign and proprietary, belongs to the States or to individual riparian owners, or both; and it is not within the Federal authority or power, either judicial or legislative, to fix or determine, as between a State and an individual owner, the limitations between State and individual ownership or control of water powers. The rights and obligations as between a State and an individual owner are fixed by the law of property as established by the decisions of the State supreme court in the State in question. This law of property, as so fixed in any State, is as to streams in that State, binding upon the Federal Government and its Supreme Court.

Mr. WYVELL. May I say one word in addition to what Judge Koonce has said—that, should the commission determine to grant an approval, the United States Government might desire to submit certain conditions, or, at least, to submit some form of the order, once the decision of the commission is made?

Mr. MIGNAULT. I wish you would do so. Perhaps Mr. MacInnes would be kind enough to write out the qualification which he thinks we should insert in any order of approval which we may make.

Mr. MACINNES. Yes.

(The commission adjourned at 5.30 p. m. until 9 a. m. to-morrow, Thursday, morning.)

OTTAWA, *Thursday, October 7, 1915.*

The commission resumed the hearing of the St. Croix diversion case at 9 a. m., all the members being present.

Mr. TILLEY. Mr. Chairman and members of the commission, this is my first appearance before the commission, and I think probably I am in the same position as Mr. Koonce. This, no doubt, is my last appearance, because I do not suppose any other client will ever come along and want me to appear.

Mr. MIGNAULT. You are too modest.

Mr. POWELL. Have you any faith in your case?

Mr. TILLEY. Yes; but the case will handle itself almost. I feel a good deal of responsibility in connection with this case. Every time that the commission, at this stage in its existence, is called upon to interpret the treaty I think there is a great responsibility put upon it, and all those who take part in aiding the commission

in coming to a conclusion as to the terms of the treaty have a responsibility cast upon them, and, so far as I can, I shall discharge the duty fairly, and having regard to what I consider to be the great importance of real assistance, and not merely an endeavor to capture a decision for the particular client I represent. The construction of the treaty is altogether too important a matter to be trifled with, because, as time goes on, the treaty will turn out to be workable or unworkable, having regard to the line of decisions that is laid down. There are different expressions in the treaty that have given me a great deal of trouble. First, in Article III, the expression "heretofore permitted." That is a broad and to me somewhat indefinite expression, and I have given it a good deal of consideration. The other expression is "temporary diversion," in Article VIII. The same expression also occurs in Article II; and as I shall proceed I shall ask the commission to consider the language of Article II, where I think the meaning to be given to "temporary diversion" is even clearer than in Article VIII.

Before proceeding, though, to analyze the treaty, I desire to state what I consider to be the result of the objections made, so far as they may be treated as objections, by the attorney general for New Brunswick and by the counsel for the Dominion of Canada. We who practice with Mr. MacInnes are accustomed to his clear, fair, and precise way of stating his points, and I ventured to ask some questions for the purpose of bringing out what I considered to be the real point, so that there would be no misunderstanding. I want to accord to Mr. MacInnes the same privilege with regard to myself, and I shall be very happy, indeed, if he will ask me any questions, as I go on, to bring out the points I am trying to make.

In the first place, I understand the Province of New Brunswick takes the position that we are trespassers as to a parcel of land 45 feet across the bed of the stream by 40 feet, a parcel of land 40 feet by 45 feet, which, it is claimed, the Province of New Brunswick owns, and that we have no title or no leave or license to erect on that piece of land this dam—that we are trespassers, and he says that is a matter which the Province has in its own hands. I do not understand that he comes to the commission and says that that gives him a right to ask this commission to impose terms upon us, to impose any obligation upon us. He says it is a matter of title. These people have no title, and we will be able to assert our title as against them, and all he thought the commission should do was to stay its hand until the question of title was determined. That, as I gather, is the position of the Province of New Brunswick. The position of the Dominion is that we come under Article VIII and the subsection that refers to temporary diversions, and that this commission can grant us permission to temporarily divert the waters, and that temporarily means the length of time that the altered channel is to exist, and not the length of time that the water in the channel is to be kept out of the natural bed. I am not saying that the position that Mr. MacInnes takes, that we come under that subsection, is entirely wrong. I shall have some remarks to make upon that; there is a good deal to be said for that contention, but we differ with him entirely as to the meaning of the subsection and as to its effect, and as to the powers of the commission acting under it. We contend that the commission may in a

case such as this permit the waters that pass through this stream, from this river bed, to be temporarily diverted in their course down the river, and that all that the subsection requires is that having taken them from their bed we shall return the same water into its bed, and thereby only temporarily divert the water.

Mr. MIGNAULT. Do you take the ground, then, that was taken by Mr. Koonce?

Mr. TILLEY. I do, absolutely. I have endeavored to find out the meaning of that expression as it may have been used by persons who had to do with drawing up the treaty, but I have not been able to get any light that helps in the consideration of it at all.

Mr. MIGNAULT. I think I would require some argument before I would assent to that proposition. I am open to hear argument.

Mr. TILLEY. I propose you shall get the argument.

Mr. MIGNAULT. But the word "temporary" seems to me to refer to time.

Mr. TILLEY. It does to me, too.

Mr. MIGNAULT. I would consider the diversion as being a whole, and that that diversion, taking water from the river, is temporary if it lasts during a certain period and permanent if it goes on forever.

Mr. TILLEY. I think I agree with you, sir; but the point is, what is the subject of the verb "diverted"? What is to be diverted? It is not the bed of the channel, it is the running water. I shall deal with it fully later on. My point is that it is as if persons were told to travel a certain road, but if there are obstructions on that road at the point of diversion you may temporarily divert, returning to the road.

Mr. MIGNAULT. Take the illustration of a road. In Quebec, at least, we have what are known as winter roads; that is to say, a road built over the fields to avoid a place where the snow is likely to drift. That road, which is a diversion from the main road, is merely a temporary road and only lasts while its necessity exists.

Mr. TILLEY. Then that brings out precisely the point I was making. That is not the temporary diversion of the road or bed under this subsection. It is a temporary diversion of the men that travel over the road, or the water that runs down the bed.

Mr. POWELL. Of the moving thing.

Mr. TILLEY. Of the moving thing, and when that passes down it may temporarily divert at that point forever.

Mr. MIGNAULT. Do you consider that was the idea the makers of this treaty had when they referred to diversions, and said that no diversion could take place without the authority of this commission? Do they not mean a diversion that will last during a certain period of time?

Mr. TILLEY. I think so; but it depends upon the thing, again, that is to be diverted.

Mr. TAWNEY. You contemplate covering this point fully in your argument.

Mr. TILLEY. Yes. I would prefer if I might leave that for the moment and return to it, because I want to take the matter up in just a little different order from that.

Mr. TAWNEY. Yes.

Mr. TILLEY. I want to deal with the Province of New Brunswick first. I do not know that I quarrel with the idea that our application possibly should be separated. I can not say that I agree that you separate it, because there are two applicants. I think that if there is any separation, it is a separation as to the thing that you are asked to approve of. Two persons may be the applicants for a certain thing, or one may be the applicant. For instance, if this property on each side of the dam was owned by one single individual, he would be the sole applicant for everything that is asked. If you split it up, the only way of splitting it up is that there is an application here for a dam. That is the obstruction. There is an application here for a canal. That is the diversion. That is the only way of dividing it up, and the Province of New Brunswick, in that view of it, is only concerned with the dam, the situs of the thing we have constructed. It is not in any way concerned with the diversion of the water, because it has no interest in the running water in the sense of a proprietary interest.

Mr. POWELL. Always excepting the legislative trust in the legislature to control its own side. You are talking about the proprietary right.

Mr. TILLEY. Well, I put it in this way: We have no such thing here in Canada, and it is from a Canadian standpoint we must argue this particular question. We have no such thing as public right in property. Every kind of property in Canada is owned either by the Crown or private individuals.

Mr. MIGNAULT. If property is owned by the Crown, it is owned generally for public purposes.

Mr. TILLEY. Yes.

Mr. MIGNAULT. So the distinction may be a pretty fine one.

Mr. TILLEY. I want the distinction rather kept in mind, if I may ask it, because the question comes down after all to this: Whether the Crown has vested the right it would have in us. Are we now the persons that this treaty protects, because we stand in the place of the Crown?

Mr. MIGNAULT. That is the question.

Mr. TILLEY. Yes; that is the question. It is put in the case of the attorney general for British Columbia against the attorney general for Canada, 1914 Appeal Cases, page 173, speaking there of fishing rights in British Columbia waters in this way:

So far as the waters are tidal, the right of fishing in them is a public right subject only to regulation by the Dominion Parliament. So far as the waters are not tidal, they are matters of private property, and all these proprietary rights passed with the grant of the railway belt and became thereby vested in the Crown in the right of the Dominion.

There, at the time when the C. P. R. was built—what is now the C. P. R.—a certain grant of lands was made by the Province to the Dominion, extending 15 miles on each side of the right of way. That was made to the Dominion for certain considerations in connection with the building of the railway, so that the Dominion became the grantee from the Crown there, and where it was above tidal waters it was held that—

So far as the waters are not tidal they are matters of private property, and all these proprietary rights passed with the grant of the railway belt and became thereby vested in the Crown in the right of the Dominion.

The question whether nontidal waters are navigable or not has no bearing on the question.

The fishing in navigable nontidal waters is the subject of property, and according to English law must have an owner and can not be vested in the public generally.

We are in the very same position here.

Mr. POWELL. That is just what I asked you. You are directing your argument to proprietary rights.

Mr. TILLEY. Yes; that is just our position here. This treaty is not between the Dominion of Canada and the United States nor between the Province of New Brunswick and the United States; it is between His Majesty the King and the United States, and when the Crown by this treaty reserves any right or provides any protection for property along that river it provides it for the Crown, if it remains the owner. It provides it for the patentee if the Crown has conveyed it away; so that if our contention is right with regard to our title to this property on which the dam is built, we are the Crown with regard to that piece of property. The rights protected with regard to it are for our benefit. To that point I want to add just one or two words to what was said a day or two ago, because the subject, while partly discussed, was not fully discussed, and one of the commissioners brought to my attention at that time the decision referred to by the attorney general for British Columbia—*Barthel v. Scotten*, in 24 Supreme Court Reports, page 387—and referred to the headnote, which reads:

A grant of land bounded by the bank of a navigable river of an international waterway does not extend *ad medium filum*, as in the case of a nonnavigable water.

Then it was stated or suggested that the report of the decision was to the same effect, but I want to read now the decision and show that the headnote is not in the slightest degree justified by what was decided by Chief Justice Strong.

Mr. POWELL. Not only that, but the fair inference from the body of the decision is the contrary.

Mr. TILLEY. Yes. It might be necessary to point out—I am not sure whether it is or not, because I understand the practice on the other side of the boundary is somewhat different from ours—that these headnotes are merely the reporter's summary of what he considers the decisions to be.

Mr. TAWNEY. That is true on our side.

Mr. TILLEY. I think in some cases your court approves, but here it is the work of a reporter, and sometimes a work that is fairly poorly done. The decision, at page 376, reads as follows:

There can be no doubt that, situate as this lot 43 is, on a large navigable river, an international waterway, the water's edge forms the boundary.

That is, you have in the decision the combination of the three things, a large river, a navigable river, an international boundary, not disjunctive with the word "or." In the headnote, you have the words "navigable river or international boundary." Chief Justice Strong said: "A large navigable river and international waterway."

Mr. POWELL. My idea goes further than yours. I think that expression "international river" is simply an illustration of the magnitude of the stream.

Mr. MIGNAULT. Not necessarily.

Mr. TILLEY. That there is the traffic of two nations upon it.

Mr. POWELL. I do not think that it has any reference in the world to two nations. I think it is a mode of stating that there is a very large traffic on it.

Mr. MIGNAULT. That would not be a scientific definition.

Mr. TILLEY. No. At any rate, all I am concerned with pointing out here is that that headnote is not justified, that, whatever meaning is to be given to the expression "international waterways," that standing alone is not sufficient. It is only an international waterway that is of the description: "A large and navigable waterway" that comes within the description as given by Chief Justice Strong.

Mr. POWELL. Read a little further and see what he places in juxtaposition.

Mr. MIGNAULT. Do you take it that if the river is a large waterway and navigable, and an international boundary stream, that then the title would not go *ad medium filum*?

Mr. TILLEY. No; I do not. I am coming to that. Just let me point out how this case arose, for instance; because this point has never been decided yet; that is, it has never been decided in any case where the point really involved in the case brought that up as the point to be considered and dealt with by the court. It has never been decided that the title of a riparian proprietor does not go to the middle of the stream at any place that is nontidal in Canada. It has not been decided to that effect yet.

Mr. POWELL. There is no decision of the court, but the expression of opinion of two judges.

Mr. TILLEY. That is to say, there is the expression of opinion by two judges; this is one of them.

Mr. POWELL. Chief Justice Strong was one of the judges and Justice King the other.

Mr. TILLEY. The other case, I think, is reported in 26 Supreme Court Reports. They are both referred to in a case which I shall mention later on. He again stated it, but he put it much stronger there. He said: "The rule that is applied in England is that a grant of lands bordering on the water is presumed to carry to the middle of the stream, in the case of all nontidal waters." That is the rule in England. That rule does not obtain in Canada, where we have these large rivers and lakes. That was an expression of opinion that was not necessary for that decision either, but in these two cases, as has been pointed out, there was the expression of judicial opinion that the rule that applied in England, where the division was simply on the question of tidal or nontidal waters, does not apply here.

Mr. POWELL. I think I can see your argument on that. The question was decided in our own courts in two cases—*Steadman v. Harding* and another case. It came before the court in New Brunswick, and the court decided that the grant went *ad medium filum*. The case was taken to the Supreme Court of Canada, and they affirmed the decision of the Supreme Court of New Brunswick, and that settled the question so far as New Brunswick is concerned.

Mr. TILLEY. I was not aware of those decisions. At any rate the recent cases in England in the privy council are all to the effect—and

that is the court of highest resort with us—to the effect that the English rule obtained wherever the English law itself obtained. For instance, they applied the English rule in the case of the Attorney General of Southern Nigeria *v.* Holt, that I referred to before, 1915 appeal cases, 599. There the question had to be determined on the question of English law, and they applied it without questioning where it was suitable to that particular case.

Mr. POWELL. The strongest case is an Irish case, where they granted to the center of one of those large Irish lakes.

Mr. TILLEY. Take *Maclaren v. Attorney General for Quebec*, 1914 appeal case, 258. These recent cases are all based on the assumption that you must take the English law here, and that the presumption must be that the dividing line comes at tidal and nontidal waters. When you get beyond the tidal waters, just as in the fishery question in British Columbia and in the case that I referred to a few minutes ago, then you are in the region of property rights, and where you convey the bank the presumption is that it goes to the center of the stream or the center of the water. The question was up in our own courts, and a very convenient collection of the authorities will be found in *Keewatin v. Kenora*, in 1013 Ontario Law Reports, 237. All these decisions are ratified, and Mr. Justice Anglin, now of the supreme court bench, reached the conclusion that the English rule did not apply here, but that case was appealed to the court of appeal, reported in 16 Ontario Law Reports, page 192, and our court of appeal said:

No; notwithstanding that there are some obitour remarks of judges to that effect, the English rule does not obtain, because by the very nature of things, where the English law is introduced, we must accept that, so that the presumption is that the grant carries to the thread of the stream.

Mr. MIGNAULT. Does that carry—I presume you would say it does—the ownership of waters flowing over the bed of the stream?

Mr. TILLEY. Yes.

Mr. MIGNAULT. I understand that to be your argument.

Mr. TILLEY. Yes; every proprietary right, everything you have—they are subject to a servitude for people to use for other purposes, but saving the rights of other people which again are their rights which we must protect. We must let them take their logs through and give them facilities for putting them through. Subject to these things our ownership is complete.

Mr. MIGNAULT. Have you any authority on that particular point?

Mr. TILLEY. Take the case of Attorney General of British Columbia against the Attorney General of Canada, 1914 appeal cases. The court says, at page 167:

The solum of the river bed is property differing in no essential characteristics from other lands. Ownership of a portion of it usually accompanies riparian property and greatly adds to its value.

And at page 171:

The right of fishing in tidal waters is in the public and in nontidal waters is in the proprietor of the soil.

Mr. MIGNAULT. Mr. Baxter, on behalf of New Brunswick, claimed there would be a difference in the rights between private parties which would not exist between the Crown and a grantee. He gave

us no authority for the distinction, but I would like to hear what you have to say on the point.

Mr. TILLEY. Take the very case I have cited. There it was held that British Columbia granting this railway belt to the Dominion, that the presumption was it carried the water adjacent to the lands and that the Dominion became the owner of the lands covered by water and proprietors and owner of the fishing rights. When the Crown grants it, it must be so, because every deed between private parties gets back to the Crown for its origin, and unless the individual gets it as grantee he can not convey it as grantor.

Mr. MIGNAULT. That struck me as obvious, that the title originated with the grant from the Crown.

Mr. TILLEY. Yes.

Mr. POWELL. Read the sentence where it is placed in juxtaposition.

Mr. TILLEY. At page 370 of the report in *Barthel v. Scotten*, following immediately upon what I read before:

A grant of land bounded by the banks or edges of such streams—

Such streams being large navigable rivers and international waterways—

does not extend to the middle thread, as is the case where lands described as so limited lying on the banks of nonnavigable rivers are granted.

Mr. MIGNAULT. Whose opinion is that?

Mr. TILLEY. Chief Justice Strong. There the court was emphasizing the distinction which had been permeating our decisions, that the test was navigable or nonnavigable. That test would not affect me; I would be all right even under that test. But the truth is that the test is not as limited as that. It is tidal or nontidal; that is what it must be.

Mr. MIGNAULT. That is the English rule.

Mr. TILLEY. Yes; but if it is to be navigable or nonnavigable, this river can not be treated as navigable. I think I gave the reference to the *Maclaren* case.

Mr. MIGNAULT. The English rule is that in a tidal river, or in the part of a river which is tidal, the bed of the river is vested in the Crown.

Mr. TILLEY. Yes.

Mr. MIGNAULT. Above tidal waters the bed of the river is vested in the riparian owners on each side of the stream. Here we have, of course, a time when the Crown was owner of the bed of every river, and the Crown made grants of property abutting on the river, of property in lateral contact with the water, and these grants carried riparian rights, and these riparian rights, I understood you to say the other day, implied ownership *ad medium filum*.

Mr. TILLEY. Yes; and, of course, when you are considering presumption as to the land conveyed by the deed you must consider the presumptions that might exist at the date the document was signed and delivered, away back about 1800, as to the bank of this stream, not with the modern notions we have of the value of water power to be transmitted by electricity—a thing unknown then. These grants were given at a time when any person desiring to operate or create a power plant there would operate it by the use of the water that is right beside his dam.

Mr. MIGNAULT. As to the use of the mater, it goes back to the decision of the Privy Council in *Minor v. Gilmour*.

Mr. TILLEY. Yes; twelfth Moore's Privy Council.

Mr. TAWNEY. I am not acquainted with Canadian law, and, for my own information, I would like to ask, Is navigable water assigned to the Dominion by statute or decisions?

Mr. TILLEY. By decisions.

Mr. MIGNAULT. It is not very well settled.

Mr. TILLEY. In so far as it affects the question of what is covered by the grant—

Mr. TAWNEY. I would like you to refer to it.

Mr. TILLEY. I will give what was said in the *Maclaren* case, by the Privy Council, in 1914 Appeal Cases, 258. At page 278 the judgment reads:

The Gatineau is irregular and it varies greatly in breadth, so that in some places it is a wide river. The bulk of water that goes down it in times of freshet is very large and at other times is comparatively small. Reaches in it may be navigated, but they are comparatively short, and it can not be said that they affect the economic use of the river excepting strictly locally, just as the extension of any other river into a lake or the like might give it a local usefulness. That such a river is not navigable is evident.

That is a river of which greater use could be made than the St. Croix River at the point we are talking about; so that that is treated as obviously not a navigable river under the law.

Mr. TAWNEY. It is treated negatively, but not affirmatively.

Mr. TILLEY. Yes.

Mr. TAWNEY. Are there any decisions treating it affirmatively?

Mr. TILLEY. No; I could not refer to any.

Mr. MIGNAULT. Navigability of a river is a pure question of fact?

Mr. TILLEY. Yes; to be determined in every case.

Mr. POWELL. It may be navigable in part and nonnavigable in another part, and I do not think anyone can argue that a river is navigable where there is nothing but single logs going down.

Mr. TAWNEY. Have you any decision showing that the floating of logs constitutes navigation?

Mr. TILLEY. Oh, no; it is distinctly different—

Mr. POWELL. We use the word "floatable."

Mr. MIGNAULT. This river, according to the American law, is a navigable river, and according to our law it is a nonnavigable and nonfloatable river.

Mr. TILLEY. Yes. If it is floatable for loose logs only, it is not considered a floatable river. A loose log can go down this, but a raft can not, so that it is neither navigable nor floatable, according to our law. The *Maclaren* case also touches the point as to the Crown being the grantor, because at page 276 it was said:

The application of the principle of *ad medium filum aquae* does not depend in any way on the nature or origin of the title of the grantor. If the land on the bank and the bed belong to one grantor and are alienable, the presumption applies.

If the land under the water can be alienated, then it goes with the land that is adjacent to it, provided they are both owned by the same grantor.

Mr. MIGNAULT. Of course the presumption can be rebutted in particular cases and has been.

Mr. TILLEY. But it could not possibly be rebutted here.

Mr. POWELL. There is an express decision in Coulson and Forbes that the presumption applies to Crown grants.

Mr. TILLEY. Yes. That being so, the first point I make is that we own the land along the river, and we own the river, so far as that is Canadian.

Mr. MIGNAULT. And you also own the water?

Mr. TILLEY. And we also own the water. We own, as well, the land on the Maine side.

Mr. MACINNES. Before you leave that point, assume the position taken by Mr. Baxter to be correct, that the Province of New Brunswick owns the bed of the stream and that your title ends on the shore, to whom would you say that the right of the use of the flowing water belongs. Does that follow the ownership of the bed—

Mr. TILLEY. I would say we would have riparian rights in it and the right to use it. We have, at least, riparian rights.

Mr. MIGNAULT. What are the riparian rights?

Mr. TILLEY. They would be the right to use the water—

Mr. POWELL. For domestic and agricultural purposes.

Mr. TILLEY. Domestic and agricultural purposes.

Mr. POWELL. And transit.

Mr. TILLEY. And we could deal with water for the purpose of driving machinery, provided we returned it to the bed while still on our property.

Mr. MIGNAULT. While you are on that point, will you consider the effect of the decision of the Privy Council in such cases as *Minor v. Gilmour*? My recollection of that case is that the river was a non-floatable river, forming no part of the public domain. You are aware the law of Quebec is somewhat different from the English law, but here we are dealing with the English law. Assume the Province owns the bed of the river opposite your land, then you would have riparian rights which would entitle you to use the water. What is the extent of these rights and how do they differ from riparian rights where you own the bed of the river at medium filum?

Mr. TILLEY. That is, to what extent would our rights differ, if we simply have the land at the side?

Mr. MIGNAULT. Without the bed of the river.

Mr. TILLEY. I would say, as applied to this case, we would be in a position of not being able to put the dam on the bed of the river.

Mr. POWELL. Or erect piers?

Mr. TILLEY. No. The benefit of owning the bed of the river is that you can use it for substructure, for bridges, and putting a dam, as we have done here. You can actually build on the bed.

Mr. MIGNAULT. In *Minor v. Gilmour* there was the title to the middle of the stream, because it was a nonnavigable stream.

Mr. TILLEY. We would be in the position of being subject to attack, as the foundation of our dam rests on the bed of the river.

Mr. MIGNAULT. I wish you would give the reference to *Minor v. Gilmour* for the benefit of my friends from the United States.

Mr. TILLEY. I am quite sure it is reported in Twelfth Moore's Privy Council Cases, but I can not give the exact page. All these cases are collected and referred to in *Keewatin v. Kenora*, 13 and 16 Ontario Law Reports.

Mr. MIGNAULT. Then there is a more recent decision in the Fish-monger's case. I do not know whether it has much bearing, but perhaps you will tell me whether you think it may help us.

Mr. TILLEY. I will get the references to these cases and hand them in.

My submission is that if we own the bed of the stream on this side, and if we own the bed on the American side, that we would have—I am leaving out the question of the treaty—the right to erect the dam without any person's leave and license, except in so far as the laws of the country would require some attention to be sure it did not affect navigation. That is only one of the incidents of ownership; one of the natural rights of the owner would be to erect a dam and develop the power proposition, just as we have done it. We can divert the water from the river and carry it on the Maine side, operate a mill with it, and return it to the river, all being done on our own property, and we would require no person's leave and license.

Mr. TAWNEY. Would that be qualified by the condition that you return the water?

Mr. TILLEY. Oh, yes; I think so.

Mr. TAWNEY. To the stream on your own property?

Mr. TILLEY. Yes.

Mr. MIGNAULT. Otherwise you could be enjoined?

Mr. TILLEY. Yes; we must do it all on our own property.

Mr. MIGNAULT. So that the lower riparian owner can exercise his right?

Mr. TILLEY. Yes; the moment it leaves us it must be in the bed of the stream for the next riparian owner to use.

That brings me to the question which has given me some consideration, as to what is the meaning of "heretofore permitted" in Article

III. It says:

It is agreed that, in addition to the uses, obstructions, and diversions heretofore permitted or hereafter provided for by special agreement between the parties hereto, no further or other uses or obstructions or diversions, whether temporary or permanent, of boundary waters on either side of the line affecting the natural level or flow of boundary waters on the other side of the line shall be made except by authority of the United States or the Dominion of Canada, within their respective jurisdiction, and with the approval, as hereinafter provided, of a joint commission to be known as the International Joint Commission.

You have three things there. In the first place, the section itself is one aimed at obstructions, uses, and diversions that may in the future be made, and you have three classes that may be made in the future. First, you have that in the future you may make obstructions, if permission has already been given; that is, "heretofore" permitted obstructions may be hereafter made. That is the first class. The second class is those provided for by special agreement between the parties. That is the second class that may hereafter be made. And then the third is "those that are hereafter authorized by either Government and approved by the commission."

Mr. MIGNAULT. You would concede, I presume, that the words "heretofore permitted" refer to the permission granted by both countries?

Mr. TILLEY. No; I would think not. It is "heretofore permitted." It depends on the thing to be done. If it is to be done on one side

of the boundary line, it is heretofore permitted by the authority entitled to give the permission.

Mr. TAWNEY. Within whose jurisdiction the use occurs?

Mr. MIGNAULT. I confess I looked on it as being a work heretofore authorized by both countries, because you will see the phrase continues "or hereafter provided for by special agreement between the parties hereto." I would take it that both the permission and the special agreement must be one between the high contracting parties or a permission granted by both the high contracting parties.

Mr. TAWNEY. In the last line it says "within their respective jurisdictions." That refers back to the uses and obstructions.

Mr. MIGNAULT. But still a permission granted on one side of the river to erect a dam would not be effective, unless a similar permission were granted on the other side.

Mr. TAWNEY. That does not follow.

Mr. POWELL. That does not vitally affect your argument. I think that is an academic question, largely, here to-day.

Mr. TILLEY. I quite agree.

Mr. POWELL. Can you not pass that over?

Mr. TILLEY. So far as my case is concerned, I can pass it over; but I have given so much thought to it—

Mr. MIGNAULT. So far as I am concerned, if you rely on it, I would not suggest that you dismiss it summarily.

Mr. TILLEY. I do not rely on it, because the section is only useful as pointing out the cases in which you must come to this commission to get approval, because the section permits, as I say, three kinds of things yet to be done—first, those heretofore permitted; that is, vested rights are safe; second, those where the high contracting parties agree; that is, without your approval; third, where one party permits and this board approves. So that you have the three kinds of things that may yet be done, and I am simply pointing out that because I think that this commission must have regard to the spirit of this treaty when dealing with this particular matter, and if they find that it is not within the spirit of this treaty that vested rights should be taken away; that the treaty should be made a means, almost, of confiscation, so to speak; if those are preserved by the spirit of the treaty, then this commission should have regard to that in dealing with this application that we present. The question as to what is meant by "heretofore permitted" in this section is a big question, and it is one that I am very glad to find that my case rather makes it unnecessary to determine, because I can establish my right to approval on other grounds.

Mr. MIGNAULT. I think, myself, that it is a very big question.

Mr. TILLEY. Yes; and it is one which should never be determined until a concrete case arises, which makes it necessary to decide it. It is a question on which all the Provinces might have to be heard, and the more that are heard on that subject before decision the better for all parties.

Mr. MIGNAULT. I quite agree.

Mr. MACINNES. In your view, the consent of the other Government would not be necessary in connection with these words "heretofore permitted."

Mr. TILLEY. No.

Mr. MACINNES. Would this not be the result, that a work which would create a change of conditions in connection with the property of the other country would be a breach of international law in the absence of the consent of that country?

Mr. TILLEY. Well, that might be so.

Mr. MACINNES. And the result then would be that the treaty makers would have used the words "heretofore permitted" as covering and including operations—that is, obstructions or the like—which would be breaches of international law.

Mr. TILLEY. No; that is just where I break with you, because this treaty says that you can not put up any further obstructions in the future than those heretofore permitted without the approval of this waterways commission. That does not say that you may put up every obstruction that you have got permission for. That leaves you just as you are. That preserves whatever vested rights you have. If the exercise of that right that you claim is a vested right by permission breaks some right under international law or private right, that is a matter to be considered. We leave you just as you are with regard to that—that is to say, if I come under this language of "heretofore permitted," I would be entitled to it, without being required to go to the waterways commission. I am entitled to exercise whatever rights I have at the present time, because my vested rights are not disturbed. It might apply this way. I do not want to discuss it, because there are real reasons for not doing it, but that section might be broad enough to say that wherever the property has been actually conveyed away by the Crown to private individuals—and they now have the rights of the Crown with regard to that private property—that this treaty does not affect them. It might go that far. That is a thing that can be taken up later on. For instance, as applied to our proposition; we did not have two separate undertakings; we had a development plan, which was the main development for Spragues Falls, and an auxiliary one for Grand Falls. Now, supposing it had been just one undertaking and we had our dam half up at the time this treaty came into existence, I would argue in the strongest possible way, providing we were proceeding legally and in accordance with our legal rights, no matter how we got the legal rights, no matter what the origin of them, if we were proceeding properly at that time, that this treaty would not impose upon us that we had to go and get further consent. If that were the case, with the dam half up, I would contend that it applied equally where we have half of our development at one point and half at another and were midway in the operation. But I think I can prove my case completely without that, and my clients being so anxious to work in harmony with all commissions that are interested in this matter that we prefer to put our case before you in such a way that you will say, "Having regard to all conditions and circumstances as applied to this case, we give our approval of this work."

Take Article II. I will come now to the other point which Mr. MacInnes put very forcibly against me. In the first place, Article II deals with a question entirely different from Article III and Article III entirely different from Article IV. Article II applied to State or provincial waters on either side of the boundary line that are higher than the waters on the boundary line; that is, waters that

run into the boundary line, therefore of higher level than the boundary waters. Article III applies to boundary waters. Article IV applies to State or provincial waters that are lower than boundary waters, and each one of these separate matters is dealt with in a separate way. Article II reads:

Each of the high contracting parties reserves to itself or to the several State governments on the one side and the Dominion or provincial governments on the other, as the case may be, subject to any treaty provisions now existing with respect thereto, the exclusive jurisdiction and control over the use and diversion, whether temporary or permanent, of all waters on its own side of the line which in their natural channels would flow across the boundary or into boundary waters.

That is where the temporary diversion first occurs, and the provision is that where, as here, for instance, the west branch of the St. Croix River is flowing toward boundary waters, the exclusive jurisdiction over the waters in the west branch—not over the west branch, because I want to distinguish, as carefully as this treaty has throughout, between the water in the branch and the branch as being descriptive of the channel in which the water flows—the jurisdiction over the waters in the west branch is exclusively in the State of Maine, and that flowing water which, in its natural channel, flows across the boundary or into the boundary stream may be diverted. The jurisdiction is so exclusive it may be diverted, either temporarily or permanently; that is, it may be diverted so that it returns back to the stream, or it may be diverted so that it never gets into the boundary stream at any time in its passing through to the ocean. It may be turned all to one side and permanently, as running water, carried some place else.

Mr. MIGNAULT. That is taken out of the watershed itself?

Mr. TILLEY. Taken out of the watershed itself, used for canal purposes, used for supplying a city, or any purpose. The diversion there may be temporary. It is flowing water running in a certain channel. It may be temporarily diverted from the channel. It may be taken temporarily in its ordinary meaning, lasting just for a time. It may be taken from that channel for a time, or it may be taken from that channel forever—temporarily or permanently. Temporarily means to remove it from the channel and return it to the channel. Permanently means to remove it and not let it return. This is the running water, and that is the thing you must have in mind in considering the word "temporary."

Mr. MIGNAULT. Not necessarily, because you can divert the water temporarily without returning it into the stream, and then that diversion may cease. You could conceive, perhaps, a case where the water is diverted and sent into another watershed, say, for a year or so, and then this diversion ceases.

Mr. TILLEY. Yes; but you can not treat it that way, I think, because this is—

Mr. MIGNAULT. I do not say you should treat it that way.

Mr. TILLEY. This is the running water. If you take it away from the bed and use it, appropriate it for some purpose that does not permit it to return, that is a different proposition. Of course, if you take the water and return it by letting it soak into some watershed and appear back by different means, that is one thing, but I mean keeping it as a body of water. If you take it away from the

bed of the river or the channel, you temporarily divert the water from the channel if you put it back into the channel again. You temporarily divert the water from its bed. You temporarily take the man out of his bed.

Mr. MIGNAULT. During the period of time, which may be five minutes or five hours, during which it flows in the new stream or canal which you have constructed, the water is diverted?

Mr. TILLEY. Yes; that is temporarily diverted.

Mr. POWELL. I think the situation might be cleared up a little if you exercised your imagination and considered a particular mass of water in that stream. Say you have a block 20 feet long. Keep your eye on the block; that goes into the diversion——

Mr. MIGNAULT. Watch a log floating in that block.

Mr. POWELL. Yes; that goes into the diversion; it flows back into the old channel. It is temporary. That water that is used is temporarily diverted from the stream.

Mr. TILLEY. From the bed; from its channel.

Mr. POWELL. And that is the use to which you claim the word "temporary" applies, and not the period when you exercise it.

Mr. TILLEY. If I may say so with respect, you have no power to fix a time which a certain channel is to last. You can only permit the water to be temporarily taken out of that bed. That is the limitation. These high contracting parties are jointly interested in this question. You can take it all temporarily, but you must give it back to them by putting it in the bed again.

Mr. POWELL. I have been thinking of a way to express it shortly and succinctly. The nearest I can come to it is this: That the word "temporarily" applies to the time that elapses between its taking out and its return, and not to the time when you exercise that privilege. Do you catch it?

Mr. TILLEY. Yes.

Mr. POWELL. It is clumsily stated, but you get the idea.

Mr. TILLEY. Yes. To my mind, I can not get at it better than this: That if you keep your mind on the water temporarily diverted there is no trouble about it, but if you have your mind on the bed of the river or channel, then you have difficulty.

Mr. MIGNAULT. If you watch your log floating down, the time it takes from the moment it leaves the stream until the moment it gets back to the stream is the temporary diversion to which you refer.

Mr. TILLEY. Yes. Supposing you put aside the treaty and consider for a moment what the parties who set about to negotiate this treaty would have in mind; what are the things that such persons should reasonably provide for? First, you have in mind that we have some three or four thousand miles of boundary line. You have all sorts of bodies of water along that line. You have the Great Lakes; you have large rivers. You have, of necessity, smaller rivers. So that you have scattered all over that area powers that are capable of immense development, where both sides of the stream can be operated, where you can both be operating at a particular point in the stream where power is capable of development; and you will have smaller streams, where it is simply absurd to talk about developing both sides, where it is commercially useless to provide for an absolute division at a particular point, and one thing that they must of

necessity have in mind is to provide for the commercial use of the water power at those points where a hard and fast rule of absolute division would make it impossible to do so. Now, then, what do they do? They do that under Article VIII in the clearest possible way, I submit. They have met in Article VIII the very situation that any person considering what sort of a treaty he should draw up must have had in mind when starting his work. My learned friend, Mr. MacInnes, emphasized, and quite properly, that the first part of that article provides that the commission in passing upon such cases ought to be governed by the certain rules, and I am not disposed to quarrel with his suggestion that each case must be determined on its merits. I fail to understand, speaking frankly, how much satisfaction is to be got from proving that there are other waters and other falls, that are not yet developed, that can be developed, because for my company to come to this commission and say, "We want now to use our property in this way, because you can put your hands on some person else and tell him he can only use that for Canada, and half his market is gone," does not strike me as being that fair sort of treaty it was intended to provide. I think when an applicant comes here he has more or less to stand on his own footing and prove his case, and **surely in a treaty covering all these diversified matters there must be some provision to deal with his particular case.** In passing upon such cases there are certain rules and principles, and the first rule or principle is that the "high contracting parties shall have, each on its own side of the boundary, equal and similar rights in the use of the waters hereinbefore defined as boundary waters." That is the general proposition, but limitations follow upon that.

The first matter that controls to some extent is that where there are different uses to be made of the water the commission must have regard to the necessity for some uses being put paramount to others, and for that reason you have domestic and sanitary purposes, which come first, and so on. We are not concerned with that. And then it says:

The foregoing provisions shall not apply to or disturb any existing uses of boundary waters on either side of the boundary.

Another provision in the treaty to save vested rights. Then follows the provision so much relied on, which reads as follows:

The requirements for an equal division may, in the discretion of the commission—

And I ask the commission to note the use of the expression, "in the discretion of the commission." We are dealing now, not with something you are to determine by any strict rules of legal right, but you are given a discretion here under this clause—a discretion that applied to certain eventualities, certain contingencies—and we have shown, as I will submit, that we have brought ourselves entirely within the provisions. The provision reads:

The requirement for an equal division may, in the discretion of the commission, be suspended in cases of temporary diversions along boundary waters at points—

That is, temporary diversions at points—at certain spots—along the waterway—

where such equal division can not be made advantageously, on account of local conditions, and where such diversion does not diminish elsewhere.

And I would put in there: "Than at the diversion—the amount available for use on the other side." That is to say, you may temporarily divert it at another point where the equal division—the equal use, the equal appropriation—can not be made advantageously because of local conditions, because of the size of the waterfall, because of the volume of water, because of the dam on one side, possibly, and not on the other; or, at any rate, because of the rock formation, of expenditure in creating the power proposition; all that sort of thing may be taken into account; and if it can not be done, in your opinion, you exercise a discretion, and at that point you permit the water to be temporarily diverted out of the canal, provided you make sure that the water as diverted returns, so that the amount available elsewhere than at the diverted spot remains the same.

Mr. POWELL. What is meant by the word "advantageously"? That it costs more to do it than the benefit derived?

Mr. TILLEY. Yes; commercially.

Mr. MIGNAULT. Or where there is not enough water to make two separate developments.

Mr. TILLEY. Yes; that is to say, just as here, you have engineer after engineer coming and telling you, "Here is a proposition that has been carried through properly; it has been carried through as any engineer trying to work it out commercially would do it, and you can not divide it up." Mr. White came here and said, "I suggested something down in Calais to that effect, but we put to one side the proposition that this could be divided up." So that now you have a case that any person considering the treaty would have in mind must occur in some places throughout the district affected by the treaty, and a case he ought to strive to cover by making a provision just such as this; and I would almost defy anyone to use better language to describe it, after all is said and done, because the only confusion that can be brought into it is by not keeping in mind that the earlier part of this treaty never confuses rivers and streams with waters so that you are in doubt what is meant by it. There is no authority here to change the River St. Croix and there is no authority to change the river in the sense of the river bed, but there is authority to change the course of the water passing through that.

Mr. MIGNAULT. Does the definition of boundary waters help you?

Mr. TILLEY. I do not think it throws much light on it. It reads in this way:

For the purpose of this treaty, boundary waters are defined as the waters from main shore to main shore of the lakes and rivers and connecting highways—

That is distinguishing water from the waterways. That is my point throughout, and if you go through this you will come to a place where it refers to channel, distinguishing channel from the water in the channel, distinguishing the river bed from the water that runs through it, and the treaty makes the clearest possible provision for temporary diversion at points where the right to do it must be proved to your satisfaction, you exercising a reasonable discretion about it; at those points it may be temporarily diverted and returned to the channel.

Mr. MIGNAULT. The channel is merely the situs.

Mr. TILLEY. Yes. Then the treaty shows—

Mr. POWELL. Before you pass from the word “advantageously,” notwithstanding what Mr. White says, from my knowledge of those matters—and I have had long experience in them, although a lawyer—I differ entirely from Mr. White. To utilize the full head between the lower level and the higher level of that head might cost more than it would be worth; but notwithstanding what Mr. White says, if you used a short penstock and delivered the water at a point, not where the level is 50 feet below the higher level, but where it may be 20 feet or 15 feet, or 12 feet, you could develop a certain amount of power and develop it advantageously. Is that not a feature of the matter that comes up for our consideration?

Mr. TILLEY. All I can say is that I know nothing about this. When you commence to talk about 12 feet it has no significance at all to me as to what it means in the power proposition. I only know what the witnesses say, and they have one and all said—there has been no discordant note about it—

Mr. POWELL. I am very familiar with the water powers, and the sawmills in that Province are below 20 feet, as a general thing.

Mr. TILLEY. Now, you are coming into, if I might say so, a different day and generation. The development of water powers at sawmills, as it was initiated when these sawmills along the river were established with a small amount of head, would be one thing. I know what it means as applied to grist mills, and so on, but that day is passing away. You take the larger development to-day and do these things by electricity. You do not require to be right beside your dam to do it. You carry it along a wire and make your development to-day. The engineers know more about this than I do, but I would say the day for that other mode of development is past.

Mr. POWELL. No; it is not past. Take Senator Gardner’s district; you go on the large streams there, and there are very few of those that have a head of 20 feet.

Mr. GARDNER. Comparatively few.

Mr. POWELL. And the most of them have less than 20 feet?

Mr. GARDNER. Yes.

Mr. POWELL. And they are running cotton mills and a great hive of industry down there.

Mr. TILLEY. You are taking me off my beat now.

Mr. MIGNAULT. So far as I am concerned, I am convinced that only one development is commercially possible.

Mr. POWELL. That is one development of the whole potential power.

Mr. MIGNAULT. I think there is no practical scheme where you can divide at that point the power developed.

Mr. POWELL. With all deference, with my experience, I would say you are entirely wrong.

Mr. TILLEY. You have got me a long way from home on that.

Mr. POWELL. You may be a long way from home, but we are very much at home here, because we have to construe this word “advantageously.”

Mr. GLENN. We have the sworn testimony to go by.

Mr. MIGNAULT. As a question of fact, I think you can not divert the water on the two sides of the stream and make it a commercial proposition.

Mr. POWELL. You do not understand the point; supposing Canada says, "We want our half; whether we can make as much of a success as the man on the other side is not the question; we want our half. We may not, relatively, with regard to advantage, be in as strong a position as you are, but we want it."

Mr. MIGNAULT. If this were not an international stream, and there were no international considerations, it seems to me that any person looking at the situation would say, "The water can only be diverted on one side," and that it would not pay to divert it on the other.

Mr. POWELL. The diversion is by means of penstocks the world over.

Mr. GARDNER. Does the last clause not cover that point?

Mr. TILLEY. Yes.

Mr. POWELL. What is that?

Mr. GARDNER. The last clause reads:

Where such equal division can not be made advantageously on account of local conditions, and where such diversion does not diminish elsewhere the amount available for use on the other side.

Mr. POWELL. Yes; but the two are factors; you have got to negative both. You have to negative the advantageous division and the other.

Mr. TILLEY. I am coming to that. I want to say right here that I do not think it makes any difference, as applied to this case, whether there is any room left for doubt as to whether it can be advantageously done or not, because, as I wish to show, the treaty is aimed at protecting the people who have the interests there, and we are on both sides of the stream and both sides are applying, and we come forward and we say, "We can not do it advantageously on both sides, and we ask you to allow us to do this, and we are the only person concerned, because we own both sides."

Mr. POWELL. To introduce the metaphysical view spoken of yesterday, it is not the proprietors on the side, it is the waters on the side.

Mr. TILLEY. If I am right that by this treaty, if you come to the conclusion that certain things can not be done advantageously or can be done a little more advantageously on one side or the other, or there is room for doubt, the only place where you would have to sit down and decide that on its strict merits would be where two people own half and half, one on each side, and the man on the Canadian side comes forward and says, "No; I contend this can be advantageously developed on our side, and I want you to determine that, and I insist that this man on the other side shall not divert the whole stream."

Mr. POWELL. Suppose the lands on the Canadian side would be sold for taxes, and passed into the hands of an entirely new proprietor, the whole thing is changed.

Mr. TILLEY. I am coming to the other point, because Mr. MacInnes suggested a construction of this document, and I asked him a question to make it perfectly clear. He says, "My idea would lead to this, That you can put a time limit, and if this property on the north should be expropriated or put into other hands, that then

they can come and ask to have this thing that has been built up on one side all changed and have half their water given to them."

Mr. POWELL. It is only as to the word "advantageously." What do you take the word to mean?

Mr. GLENN. It seems to me this particular clause answers your question; you can not get your half, because at this point the local conditions are such that it is not advantageous to divide it.

Mr. POWELL. What do you mean by that?

Mr. TILLEY. Commercially advantageous, because by developing on one side you can develop at such a decreased cost that to put two developments, and develop also on the other side would be an absurd proposition as compared with the one proposition. Now, we have it sworn here that it means a matter of anywhere from \$100,000 to \$500,000 more to develop on the Canadian side. Now, if you are going to have that additional development on the Canadian side, and have two developments, with only half the power, where are you?

Mr. POWELL. That is true.

Mr. TILLEY. That is the sort of general proposition, taking all these factors into account, that makes a man like Mr. White come here and say, "We don't even suggest such a thing to you." Now, if the Conservation Commission is not suggesting trouble for us along certain lines—

Mr. POWELL. The decision of the Conservation Commission, or its engineer, does not forestall my judgment. I do not accept that.

Mr. TILLEY. But when it comes to a matter of whether it can be done advantageously, that is very strong evidence—

Mr. POWELL. I am not expressing an opinion, although I am putting it strongly. I simply want to draw you out. I know something about sawmills—

Mr. TILLEY. I should have an opportunity to cross-examine you on that point, because at present I know nothing about it.

Mr. POWELL. If you had a dam across there, this is not a question of diversion, putting a dam across; they are separate propositions and must be looked at from different standpoints. Now, if you did that by a short penstock, one not long enough to utilize the whole fall of the stream, but 20 per cent of the fall of the stream, you could put in an electric plant and develop electricity and ship it down.

Mr. TILLEY. For how much of the stream?

Mr. POWELL. There is a fall there; say you run it down two or three hundred feet.

Mr. TILLEY. For what part of the flow?

Mr. POWELL. You might take the whole flow.

Mr. TILLEY. You are approaching the thing from this standpoint.

Mr. POWELL. I am simply putting forward a view; it bothers me—

Mr. TILLEY. I am going to answer it in a way that I hope will prevent you staying with it. The proposition you put to me is this: You say now that you have gone to all the expenditure for the dam, and now that you have developed on the other side, you could by going to some more expense that would not be considerable, divert it back to the Canadian side, but you are considering this matter from the standpoint of no work done. You are supposed to view this

ahead of the construction. Now, then, under these conditions, if we would come forward and prove exactly the case we have proved here, that no engineer that is brought before you cares even to suggest to the commission that this thing should be done on both sides, would the commission then say, notwithstanding all your opinion, notwithstanding all the people who are specially retained to investigate and protect the interests agree, we are going to say, "Our opinion differs from you, and we say it can be done advantageously." I will leave it at that. I can not add anything to it.

Mr. POWELL. You referred some time ago—and I want to call your attention to this before you start on another line of thought—very appropriately to the language of this treaty about expressing clearly the intent of the two Governments with respect to the subject matters covered. There is an apparent inconsistency between the language used in the definition of boundary waters to which you refer and the language used in Article II, which you also discussed. I do not know that it has any bearing on this case, but I am going to ask you, for my own benefit, the question as to whether or not that is an inconsistency or conflict, and if it is, how it can be reconciled. You will observe in the definition of boundary waters the language is used :

Including all bays, arms, and inlets thereof.

Article II reads :

Each of the high contracting parties reserves to itself or to the several State Governments on the one side and the Dominion or Provincial Governments on the other, as the case may be, subject to any treaty provisions now existing with respect thereto, the exclusive jurisdiction and control over the use and diversion, whether temporary or permanent, of all waters on its own side of the line which in their natural channels would flow across the boundary or into boundary waters.

Would that give to the State or the Province the right to permanently divert waters that flow into the boundary, waters such as an inlet described in the definition?

Mr. TILLEY. No; not just an inlet. I think that is covered by the preliminary article—if we might go back to that—where it says:

Boundary waters are defined as the waters from main shore to main shore of the lakes and rivers and connecting waterways or the portions thereof along which the international boundary between the United States and the Dominion of Canada passes, including all bays, arms, and inlets thereof, but not including tributary waters which in their natural channels would flow into such lakes, rivers, and waterways, or waters flowing from such lakes, rivers, and waterways, or the waters of rivers flowing across the boundary.

I think that means rivers that are excluded from the description of boundary waters—

Mr. TAWNEY. I have a case in mind from my own State, where that question will necessarily arise.

Mr. TILLEY. I think the definition practically excluded that, but I do not want to be estopped if I should ever be asked to argue the other way. See what the remainder of Article VIII provides. It says:

The commission, in its discretion, may make its approval in any case conditional upon the construction of remedial or protective works to compensate, so far as possible, for the particular use or diversion proposed; and in such cases may require that suitable and adequate provision, approved by the commission, be made for the protection and indemnity against injury of any interests on either side of the boundary.

The interests that can be prejudiced are only the interests that are involved in the ownership of land.

Mr. MIGNAULT. Or the ownership of water.

Mr. TILLEY. Yes. Under our system there is no general public right of property. It must be either in the Crown or in private individuals or in corporations. This clause shows the commission must or should have regard to interests that come here and say, "We may be prejudiced." It is the interests of people who have property that gives them an interest in the thing, and if I come here as an owner in fee simple, I can speak for my own property forever. I am not speaking so long as I own the property in fee simple and then let a new owner in fee simple come along and step in. I speak for my property once and for all.

Mr. MIGNAULT. Yes; I grant that.

Mr. TILLEY. And if I am a tenant only, I have an interest and my landlord has an interest, but all the interests are to be heard at the time this thing is done and there is to be no putting off to see whether property will change hands, because we might then have a constant change, a kaleidoscopic panorama of people appearing and saying, "We want to have something else done." A man might come and say, "I have bought this land; I want something done here," and later another man would come and would want something else done. Either the Crown or the private interest has a right to speak for the property for all time, and where a party is the owner of both sides he can speak for the land and property on both sides.

Mr. MIGNAULT. That is, if another person buys the property, or the Crown expropriates it, the person or the Crown takes the property as it is, with all servitudes which affect it.

Mr. TILLEY. Yes. There is nothing in this which points in the slightest degree to the commission fixing the thing for a number of years; you hear all the parties or their representatives have to say—

Mr. MIGNAULT. We could do so; we could grant a right for 20 or 30 years, could we not?

Mr. TILLEY. I think not.

Mr. MIGNAULT. Why not?

Mr. TILLEY. I do not think you can do so. You can require remedial works to be constructed.

Mr. MIGNAULT. If we can affect the property for all time, we can affect it for a limited time.

Mr. TILLEY. I would say no.

Mr. MIGNAULT. Why not?

Mr. TILLEY. You do not authorize a work to be done. The people who propose to do it come to you, but the prerequisite before going ahead with actual construction is approval, and the jurisdiction of this board is approval or disapproval. If approval, approval on conditions, but this board can not create a situation under this treaty that is to remain hard and fast for any period of time, because the legislatures of the places in which these properties are situate are supreme in their jurisdiction.

Mr. MIGNAULT. But the legislature could grant a right for a time.

Mr. TILLEY. The legislature could.

Mr. MIGNAULT. And why could we not?

Mr. TILLEY. I think not. I think it raises a very doubtful point, to say the least, and I would think the better opinion is against it. If the parties can not agree, the commission can say: "Now, we will not approve of this." "Why?" "Because we think we can not protect the interests of people properly, and, therefore, we refuse approval." The parties go away and come to terms, and come back and consent to terms, and that is incorporated and it is all right. But when it comes to a question of jurisdiction of this commission, it is the jurisdiction as to approving a work, and directing some other work, if they think proper, in order to protect interests that may be injured by the work that is proposed. I do not think it is necessary for my case, but I have considered the point, and I have failed to see that there is anything which indicates that the word "temporary" can be construed in any way at all to allow you to fix a period of years, to fix a time limit, to say a thing shall last a certain time, or till property has changed hands, or something else happened. I think the commission, under subsection 2, will say, "We approve or we disapprove," and we do so on certain terms, but the class of terms the commission imposes are those set out in the next following paragraph; that is, for works directed to be done, not compensation in money. For instance, if an owner comes here and says: "I am a riparian owner on the Canadian side of that boundary water, I object to this work that the St. Croix company plans to do, I will be injured," the commission can hear him. If he says, "I will be injured because my land will be flooded," he can be protected by the commission, because it says:

The commission in its discretion may make its approval in any case conditional upon the construction of remedial or protective works to compensate so far as possible for the particular use or diversion proposed.

That is, to compensate some person who says: "My property is injured by this." The paragraph continues:

And in such cases may require that suitable and adequate provision, approved by the commission, be made for the protection and indemnity against injury of any interests on either side of the boundary.

Those are interests relating to property, and if a person comes here he can ask to have certain things done for his protection, provided his property was injured by this, but the commission could not say—at least, I submit they could not—"Well, we will approve of this for 10 or 20 years."

Mr. TAWNEY. We can say, "We are approving on the condition that the party causing the obstruction pay or indemnify the property owner for the damage which he sustained."

Mr. TILLEY. Surely; but we own the property on either side and I come and say, "We do not ask anybody to direct us to take money out of one pocket and put it into another," there is nothing more to say about it. There is no interest here prejudicially affected, no properties injured; we own it all. We are just in the position of people who, prior to this treaty, had a work started, and if on no other consideration, I would say you should exercise your discretion under Article VIII in our favor, because we had embarked on the thing and put our money in it, and got half way through with our construction work.

Mr. MIGNAULT. Supposing this river could be, at some subsequent date, 20 or 25 years hence, all made available for navigation, could we not authorize the construction of a dam which would be maintained only during 20 or 25 years?

Mr. TILLEY. I would think not. I do not think it arises here, but I would be inclined to think not, because, after all, these high contracting parties have submitted certain most important things to this commission, but unless it comes squarely within the language of some clause here, then the parties have reserved their legislative jurisdiction over their own subjects and territory, and if, after 25 years, the parties came to the conclusion that matters had changed, that it should be dealt with again, legislation could be passed and matters could be dealt with.

Mr. TAWNEY. The high contracting parties have reserved to this commission the right to authorize these obstructions and uses. These things could become lawful only by approval of the commission.

Mr. TILLEY. It is a requisite, a condition precedent to doing the work, but it does not authorize the work. You can not say to us, "You go on and put up the dam, and divert the water, irrespective of the result or the damage."

Mr. MIGNAULT. If the legislature can grant the right to obstruct for a number of years, I fail to see why we can not put a time limit on the operation of such obstructions.

Mr. TAWNEY. Regardless of whether the Government has limited it.

Mr. MIGNAULT. I am just putting it as an abstract question.

Mr. TILLEY. The commission, even if there was such a jurisdiction, would have to have regard to a great many considerations. We are the ordinary company, with a good substantial bond mortgage on our property. These things have all been launched and investments have been made in them, and we do it on the faith of our ownership of the land, plus the statutes that authorize us to go ahead. We have done all that, and it would be a very serious thing, in connection with an enterprise such as this, where we are finishing it up after the treaty, starting it before, to come along and interfere with our right to own and maintain that power proposition. To put that project in jeopardy would be a most serious matter, considering the position we are in.

Mr. MACINNES. To ascertain where your contention leads both companies in this case—not one alone—have asked, for the right of diversion what, therefore, do you suggest the order of the commission should be? That they should say to the American applicants, "You can divert all of the waters," and to the Canadian applicants, "You can divert none of the water of the river." Or how do you suggest the matter should be decided, so far as their rights are concerned?

Mr. TILLEY. You will keep me right, as I am not accustomed to the board's orders and you are, and I do not know how these things are worked out. But here are the owners of the waters asking that they be allowed to divert through a canal of a certain size running to a certain place, and they say, "You can divert through that." They do not say to one, "You can take your half," and to the other, "Take your half." Here you are the owner and you represent all interests, and you come here and ask us to let this water be temporarily taken

out of the river and put on your land. We will let you do it; we are not concerned which one owns a particular piece of land. We find that we have all of them before us, and as we have all of them before us we say, "The thing you want to do is on your own land with your own power and water. It is a pure technicality, almost, to come to us. You say it can be better done this way, and the engineers say this, and you own it all, and our approval is really just a matter of routine, almost, as applied to a case such as this."

Mr. MIGNAULT. There should be some proceeding like the settling of minutes of judgment in an order of this nature.

Mr. TILLEY. I have already thought a simple judgment granting all the relief the plaintiff asks does not need much settlement, but I suppose if it is an involved judgment there ought to be. Where it comes to terms and conditions it is of the utmost importance.

Mr. MIGNAULT. If we simply grant the application, there are no terms to be considered.

Mr. TILLEY. No.

Mr. MIGNAULT. The order might be to the Canadian, "You may divert your share on the American side," and to the American, "You can divert your share on the Canadian side."

Mr. TILLEY. I can not see why the order could not be, "You two companies might divert the waters of the St. Croix River through the canal on your property, through the channel that is on your property, and put it back."

Mr. GLENN. Both sides ask that.

Mr. MACINNES. You would give the whole to each, although they are only entitled to half.

Mr. TILLEY. I would give the whole. Where the parties come forward and say, "We consent to take this order," I can not see anything that is left to be disputed about. I can not see where the difficulty is.

Mr. MIGNAULT. The Canadian company has no authority from the Dominion Parliament to divert on the American side, has it?

Mr. TILLEY. No; the Dominion Parliament has not expressly given it.

Mr. MIGNAULT. And could not.

Mr. TILLEY. I think it could.

Mr. MIGNAULT. It could not authorize a diversion on the American side.

Mr. TILLEY. I should think it might. I do not say that it could impose on the United States the right with respect to it—of course it could not—but I think the Dominion Parliament could pass an act that would be all the justification the Canadian company wanted in our courts for letting that water go—

Mr. MIGNAULT. Yes; so far as concerns the water—

Mr. TILLEY. It would be binding in Canada, but the United States might not pay any attention to it.

Mr. MIGNAULT. You say the permission given by the Dominion Parliament is merely a permission so far as control over navigation is concerned?

Mr. TILLEY. Yes. When it comes to the company, it was necessary to have the authority in some statute, because the company, being a company, had to be incorporated and get corporate powers. If it had been a private individual, we would not have needed it.

Mr. MIGNAULT. The company, being an artificial body of people, has only the powers expressly granted.

Mr. TILLEY. Yes. The situation is a little different on the other side, because, as I pointed out, by the statute law of Maine, a canal of this length is provided for by legislation on a man's own property for the purpose of providing machinery, so that at the date of the treaty we had every authority we required to go on with the work. We would have to apply for some approval of parties who are not now objecting; but as to the title, we had it all. We had a Canadian company with the power to obstruct by erecting a dam. It owned the land and the water. Therefore there was nothing more to complete its right to put the dam in to stop the water at that point. We had an American company, with the ownership on the Maine side, with the right to construct the dam and stop the water. Having got the water stopped, we had the Maine statute in the clearest possible terms to permit the company to take the water away by a canal not more than a mile long. So that at the time of the treaty we had the vested right to do this, and I submit that vested right was protected by the statute, because it could be hardly conceivable that the States, having granted rights to individuals and companies, and they having made expenditures, bought property, and gone to a lot of trouble and expense in getting ready to do something, that they would say, "Now, we are going to plant on top of all this a treaty that is intended, not to be a means of carrying out what we have already authorized properly, but a means of stopping it if any person comes in and objects."

Mr. GLENN. Do you take the position that, having got the grant from the Dominion of Canada, and a charter from the State of Maine, and owning the land on both sides, which you say extends to the middle of the stream, that the Province of New Brunswick has no rights at all?

Mr. TILLEY. No rights at all. It has the right to be heard in a tribunal of this high character, because they would hear the representatives of any Province or State.

Mr. GLENN. But no legal right?

Mr. TILLEY. No legal right.

Mr. GLENN. Nothing vested in them?

Mr. TILLEY. No. We are the complete owners, and we are here asking that we be allowed to do something on our own property that is no harm to any person else at all.

Mr. MIGNAULT. New Brunswick is now taking the ground that it owns the bed of the river, but I do not think that is involved here.

Mr. TILLEY. I do not know that it is involved here. That does not enter into the diversion in any way.

Mr. MIGNAULT. Because the Province of New Brunswick has expressly limited any right which it claims to the bed of the river, and, as expressly stated by Mr. Baxter, in answer to my question, it claims no right in the water.

Mr. TAWNEY. I understood you to say a moment ago that you could maintain a structure, under your theory, independent of any authority from the Canadian Parliament or from the Dominion Government.

Mr. TILLEY. Oh, yes; no further authority required from them at all.

Mr. GLENN. If you had not had the charter——

Mr. TILLEY. If we had not had the charter, we could have, as owner of the land, except we would have to get charter rights to do it from some other body authorized to give charter rights.

Mr. TAWNEY. If you do not require, according to your theory, any additional authority from the Dominion Government in order to legalize the structure on the Canadian side, you do not require the approval of this commission, I take it.

Mr. TILLEY. Such cases as this should be put before the commission and their approval should be given. The sooner these are all brought under some general jurisdiction, so that people have a place to go, the better. I am not putting it forward in this case. I am only putting it forward in this sense, that here is a commission with certain discretion to exercise, a discretion in a case of this kind, and I say, "Here, we are the owners; we have embarked on this and invested our money before the treaty," and the commission, I think, should say, "This case can stand on its own bottom, and we are giving approval to it, no one objecting to the details of it."

Mr. TAWNEY. You claim no additional authority is necessary?

Mr. TILLEY. Yes.

Mr. TAWNEY. You have, under the law of Canada and the decisions of the court, sufficient authority, all the authority, necessary to maintain and operate the structure that is on the Canadian side?

Mr. TILLEY. I would say so; yes.

Mr. MIGNAULT. Do you consider, Mr. MacInnes, that the Dominion charter obtained by the Spragues Falls Manufacturing Co. is conclusive, quoad the Dominion, as to any further authorization required from the Dominion of Canada?

Mr. MACINNES. I do not know that I quite follow that.

Mr. MIGNAULT. You know that under the navigable waters protection act no structure can be erected in the bed of any navigable stream without the authority of the governor in council.

Mr. MACINNES. Yes.

Mr. MIGNAULT. This, I presume, will be conceded not to be a navigable stream, but do you consider that no further authority is required from the Dominion of Canada than that contained in the charter of the Spragues Falls Manufacturing Co.?

Mr. MACINNES. The act expressly provides that it does not apply to a company incorporated by a special act.

Mr. MIGNAULT. Do you consider this company has to obtain further authority from the Dominion of Canada than it has already obtained by its own charter?

Mr. MACINNES. In what respect?

Mr. MIGNAULT. To maintain and operate this dam in the St. Croix River.

Mr. MACINNES. The statute says it can. The language is there. There is the point that I had not raised and was not particularly desirous of raising, as to whether the statute does authorize to give the power of diverting water from Canadian territory to the United States.

Mr. MIGNAULT. But that is the question put by Mr. Tawney, and I would like you to answer it, so that there will be no difficulty in the minds of the commission on that point.

Mr. MACINNES. The statute stands there and speaks for itself. I would have no authority, on behalf of the Dominion Government, to give it a power which is not contained in the act, any more than to take away one which is contained in it; but the statute is there as it stands, and I was raising no technical question on the point.

Mr. POWELL. Now, to sum up the whole matter: As I understand you, your position boils down to this, so far as Canada is concerned, a dam to the center of the stream at least is authorized, and there is no objection. So far as the United States is concerned, the balance of the dam is authorized, or will be authorized, and there will be no objection. Then, so far as the diversion is concerned, you say when this act of Congress is obtained that act and the authority of the Maine Legislature is complete and requires no supplementing for the diversion. Then, you say, that that being the case with regard to the diversion, the American company, the applicant for the authorization of this diversion, does not require any authority from the Dominion of Canada, but we, as a commission, have power to impose that upon you. That is a summing up of your position?

Mr. TILLEY. That is about it.

Mr. POWELL. You, gentlemen, have all been dealing with proprietary rights, in which I am rather with you, but there is a point—it is the international phase of the whole business. The Province of New Brunswick has a right in one-half of that water—or Canada.

Mr. TILLEY. I do not understand that.

Mr. POWELL. It has the right to one-half.

Mr. TILLEY. Some person owns it.

Mr. POWELL. I mean the subjects.

Mr. TILLEY. We own it.

Mr. POWELL. The Province of New Brunswick would have this right; if that water were not diverted and the one-half developed on the New Brunswick side there would be, as a natural sequence, a development in the country, the establishment of a town like there is down below on the American side, about 3,000 inhabitants, I understand, and the Province and the different municipalities would be interested in that as a matter of taxation. Now all that development goes to the United States and the benefit accrues to the United States. It is true the Province raises no point. If I were conducting the case, I think that is the point on which I would hang my case more than anything else.

Mr. TILLEY. With all respect, I would say that that would be rather an address to the jury.

Mr. POWELL. It is just precisely what it is. It is a matter on which they could appeal to us.

Mr. TILLEY. Supposing all this is done, and supposing the New Brunswick side of this river passes away entirely from us, beyond those diverted points—because you have permitted a diversion from these points—it passes away from us, our diversion being between these two points, an application could be made to this commission at any time to build another waterway right around here—

Mr. POWELL. On the Canadian side?

Mr. TILLEY. Yes. You would have to consider it on its merits.

Mr. MIGNAULT. You do not mean to say this commission could authorize another party to take your water away?

Mr. TILLEY. No; just on this, an application could be made——

Mr. MIGNAULT. It could, but it would not be granted.

Mr. TILLEY. I should hope not.

Mr. POWELL. I want it distinctly understood by counsel here that no claim is put forward on these grounds which I have suggested, and none is going to be made, or do you not wish to commit yourself, Mr. MacInnes?

Mr. MACINNES. I do not represent New Brunswick.

Mr. MIGNAULT. I understand New Brunswick has made no claim, except to the bed of the river occupied by the dam, and I agree with Mr. Powell that the larger question might have been raised; but we will not go beyond the questions submitted, and any permission we grant must be taken as not binding us in a case where the larger question might be raised.

Mr. TAWNEY. Are you speaking for the commission now?

Mr. MIGNAULT. For myself. I think it is very important that it should be understood that if the larger question comes up, the commission not having heard counsel on it, we would be free to consider the larger question in any feature of the case. This is my present view. I am not speaking for the commission.

Mr. MAGRATH. I was much interested in what you said about temporary and permanent diversions. I can conceive of a temporary diversion for a short period of time, where, for instance, a mill is erected to do a specified work. Then I can conceive of that character of diversion being permanent. You base your interpretation upon the reading of Article II, as I understood.

Mr. TILLEY. I start with that; I say the same expression used in two places in the treaty should have the same meaning.

Mr. MAGRATH. When you say "permanent" you mean taking the water elsewhere—away from its natural channel?

Mr. TILLEY. Yes; not putting it back.

Mr. MAGRATH. We have a specific case in the treaty where that is done, and it is provided for by a special article, namely, Article VI of the treaty. That is the St. Marys and Milk River diversion. There the treaty makers contemplated a diversion of waters crossing the boundary, a diversion where they will not be allowed to return to their natural channel, and to deal with it they created Article VI, which it might be assumed Article II was not sufficient to cover.

Mr. TILLEY. Does Article VI not make special provision for these rivers? I do not know anything about the St. Marys and Milk River matter. I was dealing with Article II.

Mr. MAGRATH. You go back to Article II, and you make it clear there, according to your view, that permanent diversion means the taking of water out of its channel and permanently keeping it out of its channel?

Mr. TILLEY. Yes.

Mr. MAGRATH. And you carry that interpretation forward in dealing with the case here?

Mr. TILLEY. Yes.

Mr. MAGRATH. The treaty makers engaged in this work undertook to divert for all time waters of the St. Marys River in Montana, and, if your interpretation of permanent diversion is correct, that case could have been dealt with under Article II, but it was dealt with

under Article VI, giving authority to permanently take water away from its natural channel.

Mr. TILLEY. No; there is a great deal more than that in Article VI. It is a little difficult for me to make an argument as applied to a concrete case which I have never studied, because there is some local study required about it. You could not work out the situation that Article VI brings about by taking Article II, under which you may temporarily or permanently divert, but if you do so you must pay all people injured as though they were riparian owners in your own country and you must not interfere with navigation. Now, you could not work out this provision in regard to this situation.

Mr. TAWNEY. Section 6 deals with these waters for the purpose of irrigation and as one river.

Mr. TILLEY. Yes; it is a way of combining the two into one, and it is compulsory, is it not?

Mr. TAWNEY. This article expressly provides that these rivers shall be treated as one for irrigation and power and defines the use in other ways.

Mr. TILLEY. If the point is regarded by the commission as being against me, I would be very glad to look into it further.

Mr. TAWNEY. As I understand the remarks of the chairman, it is applicable only to the use of the word "temporary."

Mr. MAGRATH. Yes.

Mr. MIGNAULT. It would be an illustration of what you have defined to be a permanent diversion of the water of the river, and, so far as your argument goes, it would have bearing, because in this case a permanent diversion, as you have defined it, is authorized.

Mr. TILLEY. Yes.

Mr. GARDNER. But, by agreement of the contracting parties, these two rivers are made one.

Mr. TILLEY. Yes; I think I may leave that. Unless there is something more to be asked me, I have nothing more to say with regard to this.

Mr. POWELL. Before you close, there is just one thing. Article VIII says:

The commission, in its discretion, may make its approval in any case conditional upon the construction of remedial or protective works to compensate as far as possible for the particular use or diversion proposed.

What I want to call your attention to is this:

And in such cases may require that suitable and adequate provision, approved by the commission, be made for the protection and indemnity against injury of any interests on either side of the boundary.

It may possibly have a bearing, or will have a bearing, if we take a certain view advocated by Mr. MacInnes. Now, does the word "indemnity" extend simply to indemnity in the case of remedial or protective works, or does it mean indemnity in respect of any case that comes under the preceding clause?

Mr. TILLEY. I think that is shown by the expression "In such cases." That is, cases of remedial or protective works.

Mr. POWELL. Do you think it is limited to that?

Mr. TILLEY. I think that is the point of it.

Mr. POWELL. Don't you think that is a repetition of the expression "in such cases" previously?

Mr. TILLEY. No; because in such cases previously the thing the commission may do is to authorize the construction of certain works. Then, if those works are authorized, you have cases in which you may require suitable and adequate provision to be made for the protection and indemnity against injury of any interest on either side of the boundary.

Mr. POWELL. Just at first blush that would be the view, but have you looked into it as to the other events, whether it is not limited to that case. The section says:

The requirement for an equal division may, in the discretion of the commission, be suspended in cases of temporary diversions along boundary waters at points where such equal division can not be made advantageously on account of local conditions.

That is one case. Then the next:

The commission in its discretion may make its approval in any case conditional upon the construction of remedial or protective works to compensate so far as possible for the particular use or diversion proposed, and in such cases may require that suitable and adequate provision, approved by the commission, be made for the protection and indemnity against injury of any interests on either side of the boundary.

Take this case—there are no remedial works. They are putting up a dam. We will say the American company is putting it up. The effect of that would be to dam back the water and overflow a portion of territory on the Canadian side. Now, if you limit it to protective works, there are no works there, and this commission would have no power whatever to grant indemnity to the Canadian owners on the Canadian side. At first blush, yours is the construction, but we must give it consideration, so that it will not work out an injury.

Mr. TILLEY. The way I have approached the matter, we are the interests there—

Mr. POWELL. Take the view that was put forward here: Supposing we should come to the conclusion we would award damages to somebody; at the present time, according to your view, you are the people who would pay the damages. But supposing it should turn out eventually it is the Province that is the proprietor and owns the bed of the river, then there might be—

Mr. TILLEY. If the Province is the party and owns the bed of the stream, we have our dam on a piece of land without title to the land, and it is a direct matter where they can assert their title to it, and do not need any protection.

Mr. POWELL. They could come back on you and get an injunction.

Mr. TILLEY. You can not give us title against them. That case does not come within the jurisdiction of the commission.

I have hesitated on a good many points to raise questions that are not necessary for this case, because a question of that kind should never be taken up until it is forcibly taken up by people who are in a position to come here and take it up.

Mr. POWELL. Your reply is that it is avoided because it is a matter outside of us—

Mr. TILLEY. That clause does not contemplate your compensating for land that is actually expropriated, by way of fixing a price. I

would say this: If you propose to erect a certain work over there, you must get title to the land before you put a building on it. You must get your title in the ordinary way.

Mr. POWELL. Yes.

Mr. TILLEY. I thank you for listening so patiently. I had the honor to appear before the International Hague Tribunal on behalf of Canada and Newfoundland, and I regard this tribunal as the Canadian Hague tribunal. Its duties are just as important. I esteem this a great honor and great privilege, and I hope, notwithstanding the fact that I intimated I might not come back again, that I shall have the privilege of appearing before you again.

Mr. MIGNAULT. We certainly hope so, Mr. Tilley.

Mr. MAGRATH. Mr. Stewart has called attention to the fact that in addition to Article VI, Article V also deals with obstruction of water for power purposes, and that the word "temporary" is not used. A reference to that article may be of assistance.

Mr. MIGNAULT. Yes; that is the case of the Niagara River.

Mr. MAGRATH. Do you wish to say anything, Mr. MacInnes?

Mr. MACINNES. No.

Mr. JAMES WHITE (Conservation Commission). Would it be in order for me to ask a couple of questions, to see whether I misunderstood Mr. Tilley or he misunderstood me?

Mr. TILLEY. Certainly.

Mr. WHITE. If I understood you, you had the impression that my attitude yesterday with reference to the division of the water was not in accord with my position taken at Calais?

Mr. TILLEY. Oh, no. I said—and I may be all wrong in the statement—that my understanding was that at the Calais meeting you made tentative suggestions that you were not prepared to adopt any particular one of them, or press any of them, but that you suggested certain things, and that yesterday you took the definite position that you had reached the conclusion that the division was not proper.

Mr. WHITE. No. I am afraid at Calais I did not make myself quite clear.

Mr. TILLEY. As long as you made yourself clear yesterday, I am satisfied.

Mr. WHITE. At Calais, Gov. Glenn asked me first about the legal aspect of the question, with which I declined to deal. Then he asked was the division of water possible at Grand Falls as an engineering proposition, and I said "Yes." Had I undertaken to elaborate, I could have gone further and said it was economic nonsense. And the other point I wished to ask you—did I understand you that some one had advocated the taking away of half the market from the company?

Mr. TILLEY. I do not think I said that. If I did, it was a slip.

Mr. WHITE. You spoke about taking away half the market, and I did not know whether that was an abstract proposition.

Mr. TILLEY. My mind is a blank as to that.

Mr. WHITE. I wish to have it clear that my own statement was to the effect that we had no desire to deprive the company of any market whatever.

Mr. POWELL. When you speak about it being economic nonsense, do you mean the development of this potential power?

Mr. WHITE. I mean to say that to ask any company to go to work and spend hundreds of thousands of dollars, without any corresponding benefit whatever, is economic nonsense.

Mr. POWELL. Supposing there is a dam there, and you put a penstock in at the foot there about 200 or 300 feet, not away down about 2,400 feet; is that possible or not? It is possible from an engineering standpoint, of course?

Mr. WHITE. Yes.

Mr. POWELL. But from an economic standpoint?

Mr. WHITE. Absolutely impossible. What right would any jurisdiction, legislative or otherwise, have to——

Mr. POWELL. Leave out the jurisdiction and come down to a matter of right.

Mr. WHITE. Are we going to deal with the matter from an economic standpoint or common-sense standpoint? From an economic standpoint there is no justification whatever, unless you can show some corresponding advantage. If you go to work and build a power on the American side, and you develop that power at the minimum of cost, all you have to do is to build a transmission line and you can carry that electricity wherever you please.

Mr. POWELL. You do not understand my question. Would it not be practicable to use a 20-foot head with a penstock a couple of hundred feet in length?

Mr. WHITE. Are you regarding this thing from an engineering standpoint or from an economic standpoint?

Mr. POWELL. You say it could not be done?

Mr. WHITE. It could be done, but it should not be done. I would never advocate the placing of onerous conditions on the company.

Mr. POWELL. I am not speaking about the company.

Mr. WHITE. Any company.

Mr. POWELL. Supposing an electric company wanted to develop electricity; could they not build a penstock 200 feet long and conduct the power to the power house two or three hundred feet below? Could they not do that economically?

Mr. WHITE. Perhaps; I can answer that directly. In any hydraulic proposition the essential point is, what is the cost of the development per horsepower. In Niagara it is \$68, approximately. Is there any reason on earth why you should go to work and make that electrical energy cost that company \$125 or \$200 per horsepower?

Mr. POWELL. I am not speaking of that company. You know where the Magagaudivic River is?

Mr. WHITE. Yes.

Mr. POWELL. You know where the fall is?

Mr. WHITE. Yes.

Mr. POWELL. You know where their pulp and paper mill is?

Mr. WHITE. Yes.

Mr. POWELL. Does that not run with a penstock two or three hundred feet from the higher level to the lower, and don't they make a success of it?

Mr. WHITE. That is, to my mind, getting away from the main question.

Mr. POWELL. I want an answer to the question.

Mr. WHITE. You can develop waterfall that will cost \$60 at one point and at another point it will cost \$200, and the question whether it is an economic development depends on whether you can make a profit, but there is no reason why you should impose conditions on a company—

Mr. POWELL. I am not talking about imposing conditions on a company; I am asking if it is not possible, from a commercial and engineering standpoint, to have a low dam across the river there, and by means of a penstock two or three hundred feet below to make a paying proposition?

Mr. WHITE. I do not know whether I made myself clear or not, but this is the point: If you have a head of 40 feet—

Mr. POWELL. I am not speaking of a head of 40 feet. I am simply asking about a dam that would give you 10 or 12 feet fall—that is, a fall in that rapid of more than 20 feet within two or three hundred feet—and would it not pay, as an economic proposition, to build a low dam and put in your penstock and develop your electricity below?

Mr. WHITE. I do not think an electrical engineer of Mr. Hardy's reputation would undertake to answer that question without more data.

(The commission then adjourned.)

(The exhibits herein referred to are on file in the offices of the commission at Washington and Ottawa.)

MEMORANDUM BY JAMES WHITE, RE HEARING, OCTOBER 7, 1915.

[Printed by leave of the commission.]

On October 7, at the hearings of the International Joint Commission dealing with the St. Croix River application, and just at the close of the hearings, I was asked some questions by Mr. Commissioner Powell.

After the meeting I was informed that, whereas, in commenting upon power development at Grand Falls, I was considering what would be economical from the physical standpoint, Mr. Powell had in mind only what might or might not be economical development from a purely commercial standpoint, or from the standpoint of utilizing electrical energy, say, for municipal purposes.

To avoid the possibility of misapplication of my remarks I desire, by means of this supplementary statement, to remove the possibility of any misunderstanding.

In recent years governments having control over water-power possibilities have been more and more insistent that the full head be developed at every particular site. Only last year two bills were introduced into the United States Congress contemplating even the abandonment of the present large hydro-electric plants at Niagara Falls and replacing them with plants more efficient in character and designed to utilize the full head of the rapids above the Falls, of the Falls themselves, and the rapids below the Falls.

Knowing when Mr. Powell asked the question regarding the developments with low head, such as 10, 12, or 16 feet, that the St. Croix River in the vicinity of Grand Falls had two falls, consisting of the Upper Pitch and the Lower Pitch, I formed the impression that he might have had in mind the development of the Upper Pitch only. Such a proceeding would, in my judgment, be economically wasteful, because only utilizing part of the head and impairing the full potentiality of the Upper Pitch with respect to the Lower Pitch, or vice versa.

With reference to the St. George Pulp Co.'s development on the Magaguadavic River, I understood Mr. Powell to inquire whether it would be profitable to

develop only one of the pitches in the falls at this point, instead of developing (as the St. George Pulp Co. has developed) the full head adjacent to the site of its plant.

The two all-important questions in considering the engineering aspect of a water-power proposition are "head" and "flow."

I endeavored to express myself clearly on this point by referring to the question of "head," but when Mr. Powell mentioned that the "head" did not enter into his consideration, I felt that, as I was not omniscient, I could not answer intelligently, and that there was a radical and insurmountable difference in viewpoint.

Respecting the question whether or not there would be economic advantage to Canada through the development on the Canadian side of even a low head, or from a high head utilizing only a portion of the flow of the river, there can be no two opinions. Canada's economic advantages are inseparably associated with her own share of international waters.

In the report of the commission of conservation upon the water powers of New Brunswick numerous instances are recorded where economical and advantageous use is made of small heads and small blocks of water power. For instance, on the Magaguadavic River there is a sawmill at the second fall, developing 12 feet, and on the Northeast Branch of the same river there are three small power sites—one utilized for an excelsior mill, another for a grist-mill, and the third for a sawmill, each operating under less than 20 feet of head. These small heads can thus often be profitably utilized by industries that only require a small amount of power as compared with pulp mills, that require very large amounts of power. For instance, on Porter mill stream, one of the small tributaries of the St. Croix, there is a small development of between 50 and 100 horsepower, utilizing about a 20-foot head.

As above stated, there can be no two opinions about the economic advantage to the Province of New Brunswick, and, of course, to Canada at large, through power development taking place on its own side of the boundary, and for certain manufacturing and industrial purposes, and even for municipal purposes. Small blocks of power of even from 100 to 500 horsepower are frequently of marked economic and other advantage.

Now, if there has been on my part a misunderstanding of the use of the word "economical" in the sense in which I have indicated that Mr. Commissioner Powell may have had this word in mind, I trust that the foregoing explanation will amply clear up the difficulty and prevent misunderstanding of my answers to questions at the hearings, because it is clear that development on the Canadian side of the boundary, of Canada's own share of the waters, may be economically advantageous, and would assuredly be economically advantageous with increased population and when municipalities and industries commence to utilize electrical energy even in comparatively small quantities. Indeed, one has only to view the evolution of the water-power situation in the vicinity of St. Stephen and Calais, with the old wing, diversion, and other dams, to see how industries have developed by the utilization of comparatively small heads and utilizing only a portion of the flow of the St. Croix River, although as regards future developments and expansions of existing developments all engineers hope that the maximum head possible will be utilized.

APPENDIX.

ORDER OF THE PRIVY COUNCIL (206).

[Certified copy of a report of the commission of the privy council, approved by His Royal Highness the Governor General, on the 29th January, 1915.]

The committee of the privy council have had before them a report, dated 25th November, 1914, from the minister of public works, submitting that the Sprague's Falls Manufacturing Company, Limited, of New Brunswick, a company duly incorporated by act of Parliament of Canada, 2 Edward VII, chapter 103, which was amended by 4 Edward VII, chapter 126, has made application, under the navigable water-protection act, chapter 115, R. S. C., 1906, and the amendments thereto, for the approval of the attached plans (marked A, B, and C), specifications, and description of the site of a dam, power canal, and appurtenant works at or near Grand Falls, N. B., for the storage and diversion of the waters of the St. Croix River, and, as this river is an international stream, the company has also requested that the application be referred to the International Joint Commission;

That a corporation, operating conjointly with the above company, on the United States side of the St. Croix River is making similar application to the United States Government under the name "St. Croix Water Power Company;"

The minister states that, in accordance with the terms of the order in council of the 9th February, 1914, governing the procedure to be followed in cases coming within the operation of the boundary-waters treaty with the United States, the above application of the Sprague's Falls Manufacturing Company, Limited, has been investigated by the engineering branch of the department of public works, with the result that the works for the approval of which application has been made are reported to be already nearly completed, and to be situated in waters which are not navigable;

That the St. Croix River is, however, navigable in part and, as such, following the practice of the department of public works, comes under the operation of the navigable waters protection act;

That, according to this act, approval must be secured before works are constructed;

That, since in the case under consideration, the commencement of works was precedent to the application, and they are now practically completed, no legal approval under the act can therefore be given;

That, nevertheless, in view of the fact that there are no objections to the works, in so far as navigation is concerned, it is considered that the above application of the Sprague's Falls Manufacturing Company, Limited, for the approval of the attached plans (marked A, B, and C), specifications and description of the site of a dam,

power canal, and appurtenant works, at or near Grand Falls, N. B., for the storage and diversion of the waters of the St. Croix River, should be favorably received for reference to the International Joint Commission.

The minister recommends that authority be given accordingly.

The committee concur in the foregoing and submit the same for approval.

(Signed) **RODOLPHE BOUDREAU,**
Clerk of the Privy Council.

The honorable the MINISTER OF PUBLIC WORKS.

D.

DESCRIPTION OF SITE.

That part of the St. Croix River on the Canadian side of the boundary line, at Grand Falls, so called, in the county of Charlotte, in the Province of New Brunswick, extending from the shore or bank of said river to the center of the stream or the boundary line between the Province of New Brunswick and the State of Maine, to connect with that part of the said dam which is being erected from the shore of the State of Maine to the center of said river, the dimensions of said dam being given on the plans filed herewith.

E.

NAVIGABLE WATERS PROTECTION ACT, R. S. C. CHAPTER 115.

The Sprague's Falls Manufacturing Company, Limited, a company incorporated by the act of the Parliament of Canada, 2 Edward VII, chapter 103, hereby gives notice that it has, under section 7 of the said navigable waters protection act, deposited with the minister of public works at Ottawa, and in the office of the registrar of deeds for the county of Charlotte, in the Province of New Brunswick, a description of the site and plans showing a proposed dam, power house, and power canal to be constructed thereon, on the St. Croix River, at or near Grand Falls, in the county of Charlotte, Province of New Brunswick.

And take notice that after the expiration of one month from the date of the first publication of this notice the said company will, under the said act, apply to the minister of public works, at his office in the city of Ottawa, for approval of said site and plans and for leave to construct said works.

Dated at St. Stephen, N. B., this 2nd day of November, A. D. 1914.

(Signed) **MELVILLE N. COCKBURN,**
*Solicitor for the Sprague's Falls
Manufacturing Company, Limited.*

F.

GENERAL DESCRIPTION OF HYDROELECTRIC DEVELOPMENT ON THE ST. CROIX RIVER, AT GRAND FALLS, MAINE, FOR THE ST. CROIX PAPER COMPANY.

The general plan of the development is shown by the accompanying drawing, No. 10462, prepared by George F. Hardy, engineer.

The purpose of the development is to increase the natural head and fall at Grand Falls, Maine, of the waters flowing down the St.

Croix River and control them so that they can be utilized to operate water wheels and generate electric power; and said electric power can be transmitted by wire to Woodland, Maine, and used in the mill there in the manufacture of paper.

The main dam, approximately eleven hundred feet long, is of the hollow, reinforced concrete type and was designed by the Ambursen Hydraulic Construction Company. It is built on solid rock and is essentially a concrete slab reinforced with steel rods supported on concrete buttresses. It is more stable than a solid masonry dam as practically designed.

The canal is an artificial waterway excavated through a natural gulley. Its purpose is to divert the waters of the St. Croix River without appreciable loss in head to a point on the river bank from which said waters can be conveniently carried to water wheels discharging back into the St. Croix River below the natural falls.

At the lower end of the canal is a solid concrete head-gate wall from which the water is conducted by steel penstocks fourteen feet in diameter to the power house. The openings through the head-gate wall to the penstocks can be closed by gates and are guarded by steel racks or screens against the entrance of sticks or other foreign substances suspended in the water. The racks are sufficiently strong to hold the entire water pressure should it become necessary to close them with planks to repair the gates behind them. Two penstocks are now installed and provision is made for a third when the additional power shall be required.

The power station is a permanent structure with brick walls, concrete roof supported on steel trusses, and concrete foundations resting on the solid rock. In the station are two 4,000-horsepower water-wheel units, each direct connected to an electric generator and other accessory equipment required. There is also space in the building, and all provisions are made for a third water wheel and generator unit. The electric current from the generators passes through step-up transformers and thence by the transmission line to Woodland, Maine. The transformers are housed in a brick building adjacent to the power station and in every way similar to it.

REPORT ON THE RELATIONS OF THE ST. CROIX PAPER COMPANY WITH THE STATE OF MAINE.

In an order from the executive council of Maine, dated November 21, 1912, the chief engineer of the State water storage commission was directed to investigate the Grand Falls Dam project of the St. Croix Paper Company. A party was put into the field on December 3 for the purpose of determining the following points:

1. The accuracy of the location on the ground by the engineer of the St. Croix Paper Company of the flowage line on Indian Township.
2. The effect of the Grand Falls Dam and the old Princeton Dam on water levels at the village of Princeton.
3. Relative elevations at Princeton and Grand Falls referred to the mean sea-level datum of the United States Geological Survey.

These points having been determined, a deed was drawn in which the State of Maine conveyed to the St. Croix Paper Company the right to flow and to cut timber on certain lands belonging to the State in Indian Township subject to the following conditions, i. e.:

That the dam at Grand Falls be constructed so that the height of water shall not exceed an elevation of 204.31 at a point just below the highway bridge at Princeton;

That the Princeton Dam be reconstructed so that the maximum flood height shall not exceed this high-water limit nor allow the water to drop below an elevation to be later determined and specified;

That the design of these dams be approved by the chief engineer of the State water storage commission or his successor in office on the basis of a possible flood run-off of 28 second-feet per square mile on the drainage area of 1,380 square miles at Grand Falls.

Both Grand Falls and Princeton were connected by levels with mean sea-level datum at Calais, and it was found that the necessary correction to be applied to the levels of the St. Croix Paper Company at Grand Falls (which are based on the main Central Railroad datum) is +5.10. The correction to be applied to the St. Croix Paper Company levels at Princeton is +5.56.

Computations were made on the basis of a possible flood run-off of 28 second-feet per square mile, and the following elevations were determined and specified, the datum being mean sea level:

High water at Princeton Bridge	204. 31
Low water at Princeton Dam	198. 45
High water and top of flashboards at Grand Falls	201. 20
Lower crest of Grand Falls Dam	193. 70
Higher crest of Grand Falls Dam	198. 10

Approximately 51 per cent of the run-off of the St. Croix River at the junction of the two branches at Grand Falls is from the West Branch, which lies entirely within the State of Maine, 49 per cent being from the East Branch, which forms the international boundary, and approximately 72 per cent of the entire drainage area of the river lies within the State of Maine. The figures from which these percentages have been obtained were published in the Second Annual Report of the Maine State Water Storage Commission.

Attention may be called to the fact that although the application for the approval of the Grand Falls Dam was filed by the St. Croix Water Power Company, and the State of Maine conveyed the flowed land to the St. Croix Paper Company, the officials of the two companies are identical.

Respectfully submitted.

(Sgd.) GEORGE C. DANFORTH,
Assistant Engineer Public Utilities Commission.

DEED FROM THE STATE OF MAINE TO THE ST. CROIX PAPER COMPANY.

Know all men by these presents, that the State of Maine, in consideration of the sum of thirteen thousand five hundred and eighty-two dollars (\$13,582), to be paid by the St. Croix Paper Company, a corporation existing by law and having its place of business at Calais, in the county of Washington, in said State of Maine, and of the covenants and agreements hereinafter contained to be performed by said St. Croix Paper Company, of which said amount the sum of one thousand five hundred and eighty-two dollars (\$1,582) is to be paid upon the delivery of this deed and the balance in the manner hereinafter stipulated.

The said State of Maine hereby remises, releases, bargains, sells, and forever quitclaims unto the said St. Croix Paper Company, its successors and assigns, certain rights of flowage and to cut timber on a certain tract of land in Indian Township, so called, in said county of Washington, bordering on the West Branch of the St. Croix River, the contours and boundaries of which said parcel of land are more particularly shown on the plan thereof, designated as "Land flowed on Indian Township, Washington County, by Grand Falls Dam of the St. Croix Paper Co.," which said plan is recorded in the Washington County Registry of Deeds Plan Book 3, page 60, and is hereby referred to for a more particular description of the land to be flowed under this deed, said tract of land containing one thousand seven hundred and sixty-eight acres, more or less; with the additional right to cut and remove timber on certain islands, containing one hundred and sixty-eight acres, more or less, which are situated within said flowage tract above described.

The extents of said flowage tract is determined by the water stored at an elevation of 204.31 feet (State water storage datum) by the dam of said St. Croix Paper Company now under construction at Grand Falls, so called.

The said rights of flowage and of the cutting and removal of timber are conveyed upon the following conditions and to be performed by said St. Croix Paper Company:

First. That the said St. Croix Paper Company shall pay the balance of said cash consideration, to wit, the sum of twelve thousand dollars (\$12,000) as follows: \$4,000 on or before the fifteenth day of August, A. D. 1913; \$4,000 on or before the fifteenth day of October, A. D. 1913; and \$4,000 on or before the fifteenth day of December, A. D. 1913.

Second. That the said St. Croix Paper Company shall construct its Grand Falls Dam, so called, now under construction near the junction of the east and west branches of the St. Croix River, so that the height of water stored shall not exceed an elevation of 204.31 feet (State water storage datum), which is equivalent to 199.21 (M. C. R. R. datum) at a point just below the highway bridge at Princeton, in said county of Washington.

Third. That the said St. Croix Paper Company shall so reconstruct the dam at said Princeton, and known as the Princeton Dam, that the design shall provide that the maximum flood height shall not exceed the elevation specified in paragraph 2 of these conditions; and, further, that the design shall not permit the water above the dam to be lowered below a mark to be known as low-water mark and to be determined and indicated as hereinafter specified.

Fourth. The design of the Grand Falls Dam and of said Princeton Dam, before the construction of said dams is completed, shall be approved by Cyrus C. Babb, chief engineer of the State water storage commission or his successor in office, on the basis of a possible maximum flood run-off of 28 cubic feet per second per square mile on its drainage area of 1,320 square miles at Grand Falls.

Fifth. Said St. Croix Paper Company shall place or cause to be placed, under the supervision and with the approval of said chief engineer of the State water storage commission or his successor in office, suitable monuments at such points as said chief engineer or

his successor in office shall determine, for the purpose of indicating the high-water and low-water levels above referred to.

To have and to hold the above-granted rights and interests to the said St. Croix Paper Company, its successors and assigns, subject, however, to the conditions hereinbefore expressed.

In witness whereof the governor of the State of Maine and James S. Wright, of the executive council, by virtue of the authority vested in the governor and council under section 42 of chapter 13 of the Revised Statutes of the State of Maine, and in accordance with an order passed by said governor and his executive council on the 24th day of April, A. D. 1913, have executed these presents in behalf of said State of Maine.

STATE OF MAINE,
By WILLIAM T. HAINES,
Governor of State of Maine.

Witness:

GEO. W. LEADBETTER.

By JAMES S. WRIGHT,
Of the Executive Council.

Witness:

GEO. W. LEADBETTER.

STATE OF MAINE, *Kennebec, ss:*

AUGUSTA, *Apr. 24, 1913.*

Personally appeared the above-named William T. Haines, governor of the State of Maine, and James S. Wright, of the executive council, and acknowledge the above instrument to be their free act and deed and the free act and deed of said State of Maine.

GEO. W. LEADBETTER,
Justice of the Peace.

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